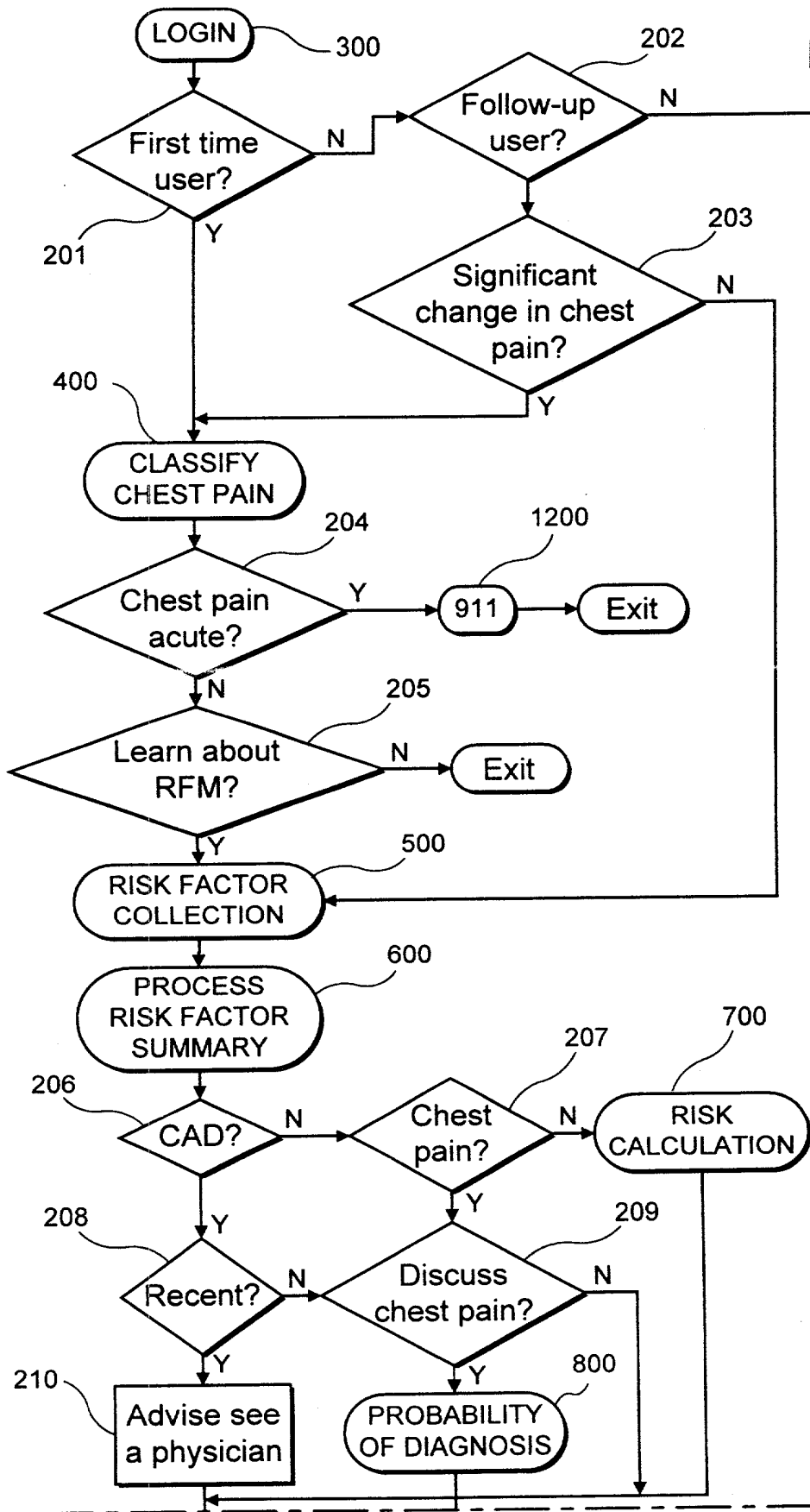


FIG. 1

2022050507560



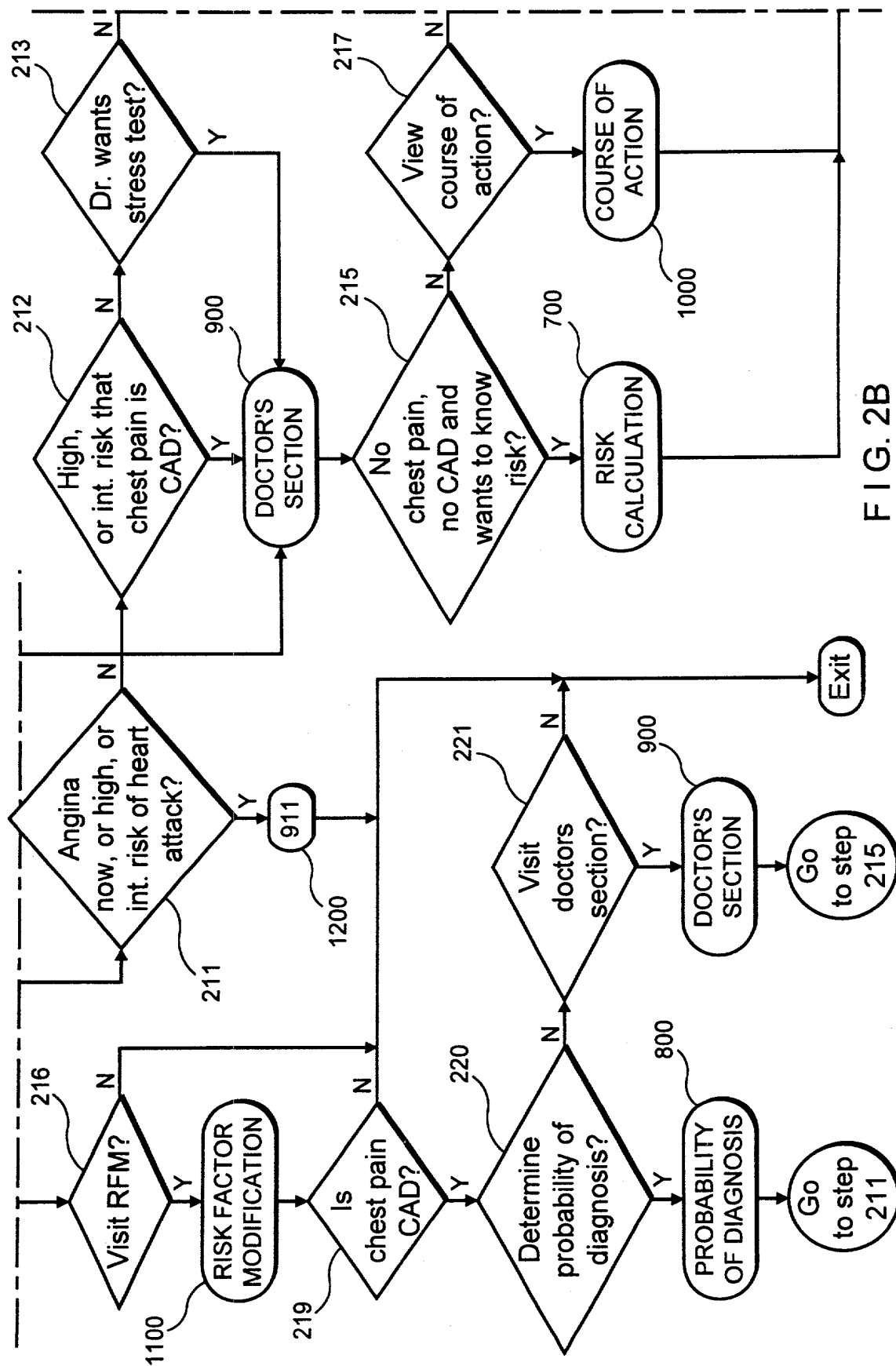


FIG. 2B

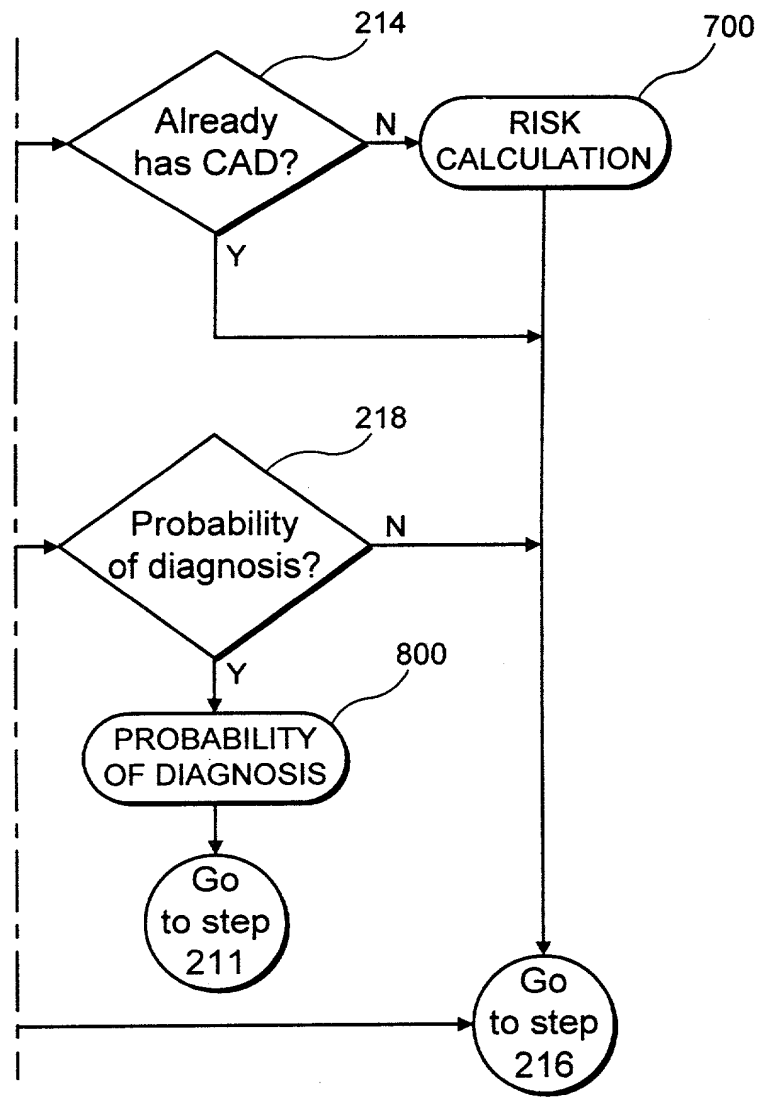


FIG. 2C

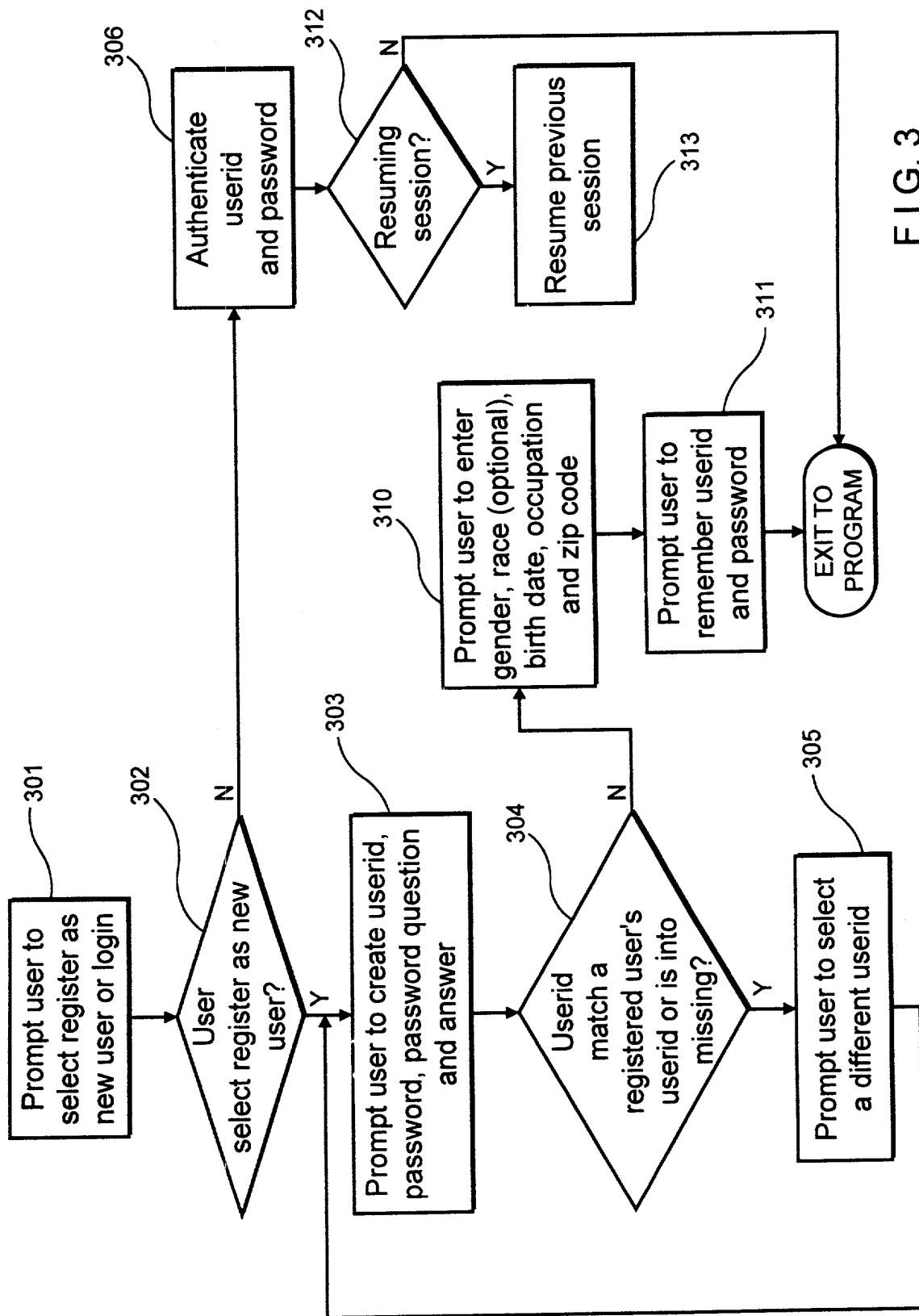


FIG. 3

Last Reviewed 3/3/2000

If this is your first time using CardiacDoc,  
you will need to register first.

302

Registered CardiacDoc  
users  
can login here:

User ID

306a

Password

306b

☐ Resume Previous session 313

☐ Begin a follow-up session 314

*(Please note that  
password is case  
sensitive)*




FIG. 3A

## Account Registration

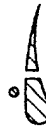
WWW.CARDIACDOC.COM

HOW TO USE CARDIACDOC

DISCLAIMER/TERMS & CONDITIONS

DICTIONARY OF TERMS

YOUR FEEDBACK /QUESTIONS



**MemberWare**

www.memberware.com

Last Previewed : 3/3/2000

**Please create User ID for yourself :**

*must be 4-16 characters long with no spaces*

303a

**Please create a password :**

*must be 4-8 characters long with no spaces*

303b

**Please confirm your password :**

303c

In the event that you forget your password, please enter a question that we can ask to help you

remember it (example: enter "What is your mother's maiden name?" In this field if the answer to that question to that question is your password) :

303d

**Are you male or female ?**

☐ MALE ☐ FEMALE

310a

**What is your date of birth ?**

MONTH DAY YEAR

310b

*optional - What is your race?*

310c

*optional - Please tell us your occupation :*

310d

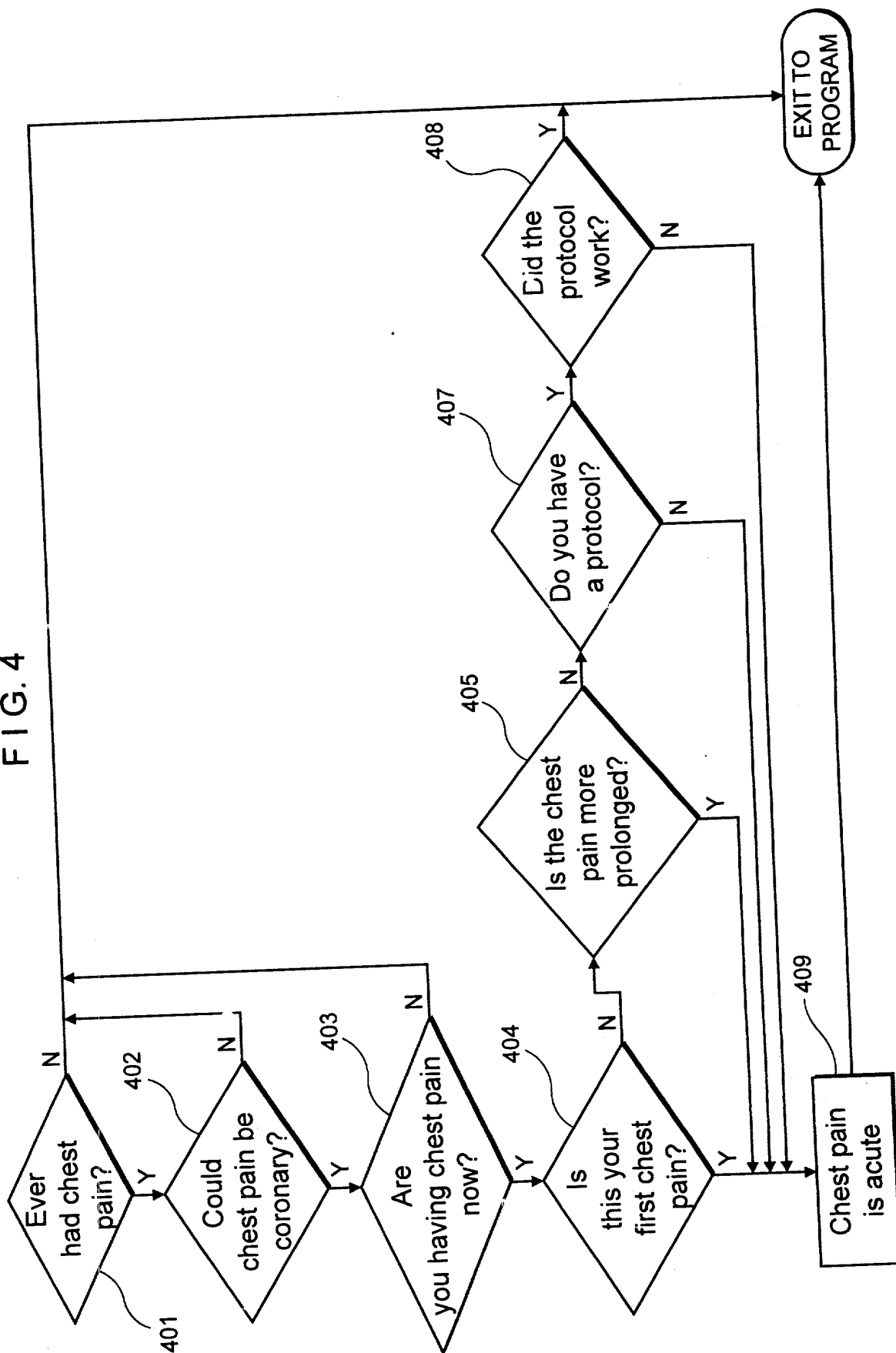
*optional - Please tell us your zip code :*

310e



FIG. 3B

FIG. 4





Do you ever have chest pain that you think could be related to your heart, or do you have known coronary heart disease ?

**No**

401, 402

**You can probably lower your risk of cardiac problems. Would you like to learn how?**

205

☒ Yes

☐ No



END THIS SESSION

FIG. 4A

209220-566E/660

202205566E2660

Do you ever have chest pain that you think could be related to your heart, or do you have known coronary heart disease ? **Yes** 401, 402

Are you having chest pain right now ? **Yes** 403


Is this the first time you have had chest pain ? **No** 404

Is the pain lasting longer than normal ? **No** 406

Has your doctor told you what to do when you get chest pain? **Yes** 407

Did you try it, and is your pain gone? **Yes** 408

You can probably lower your risk of cardiac problems. Would you like to learn how? 205

☐ Yes ☐ No 

END THIS SESSION

FIG. 4B

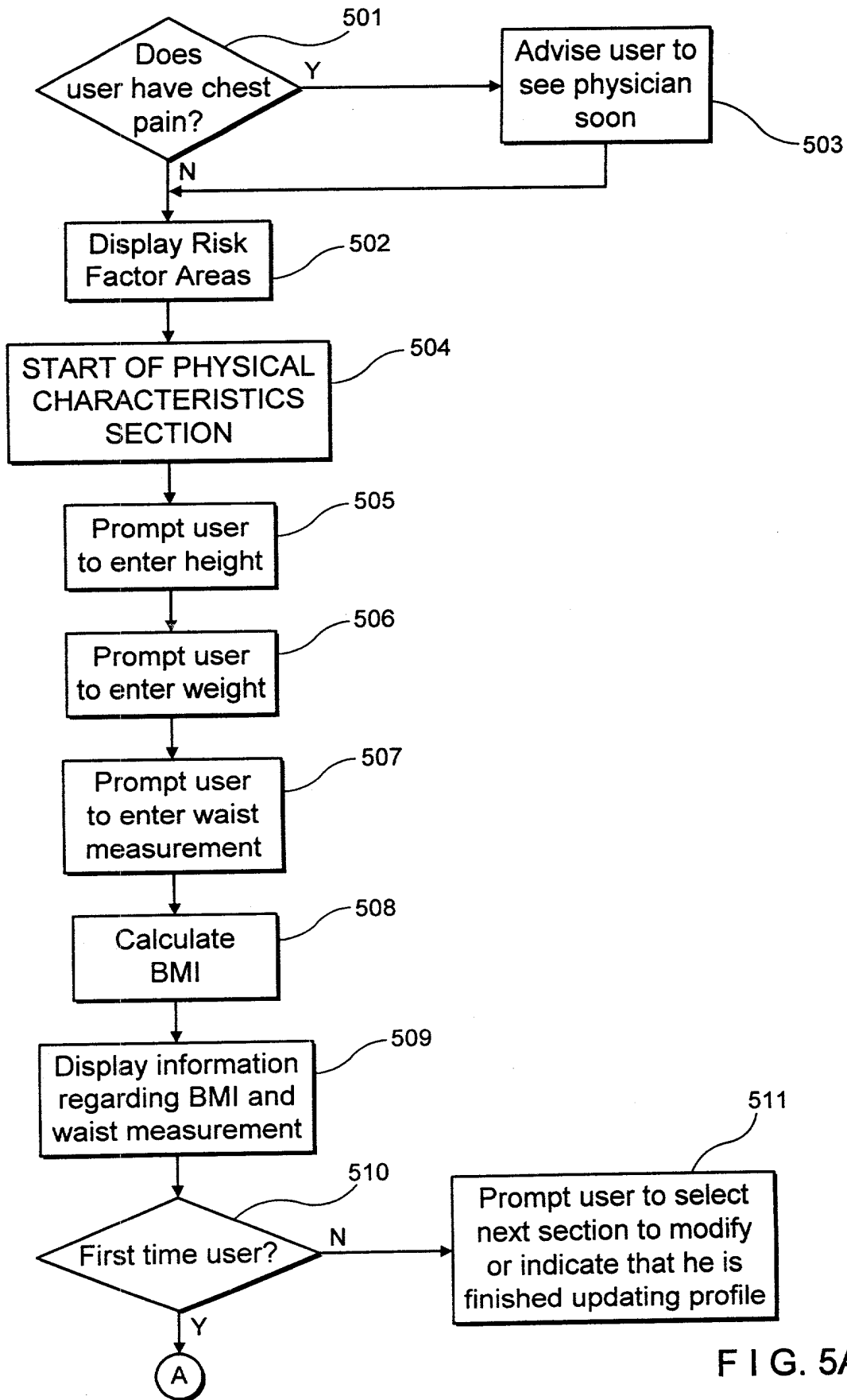


FIG. 5A

209220 55664660

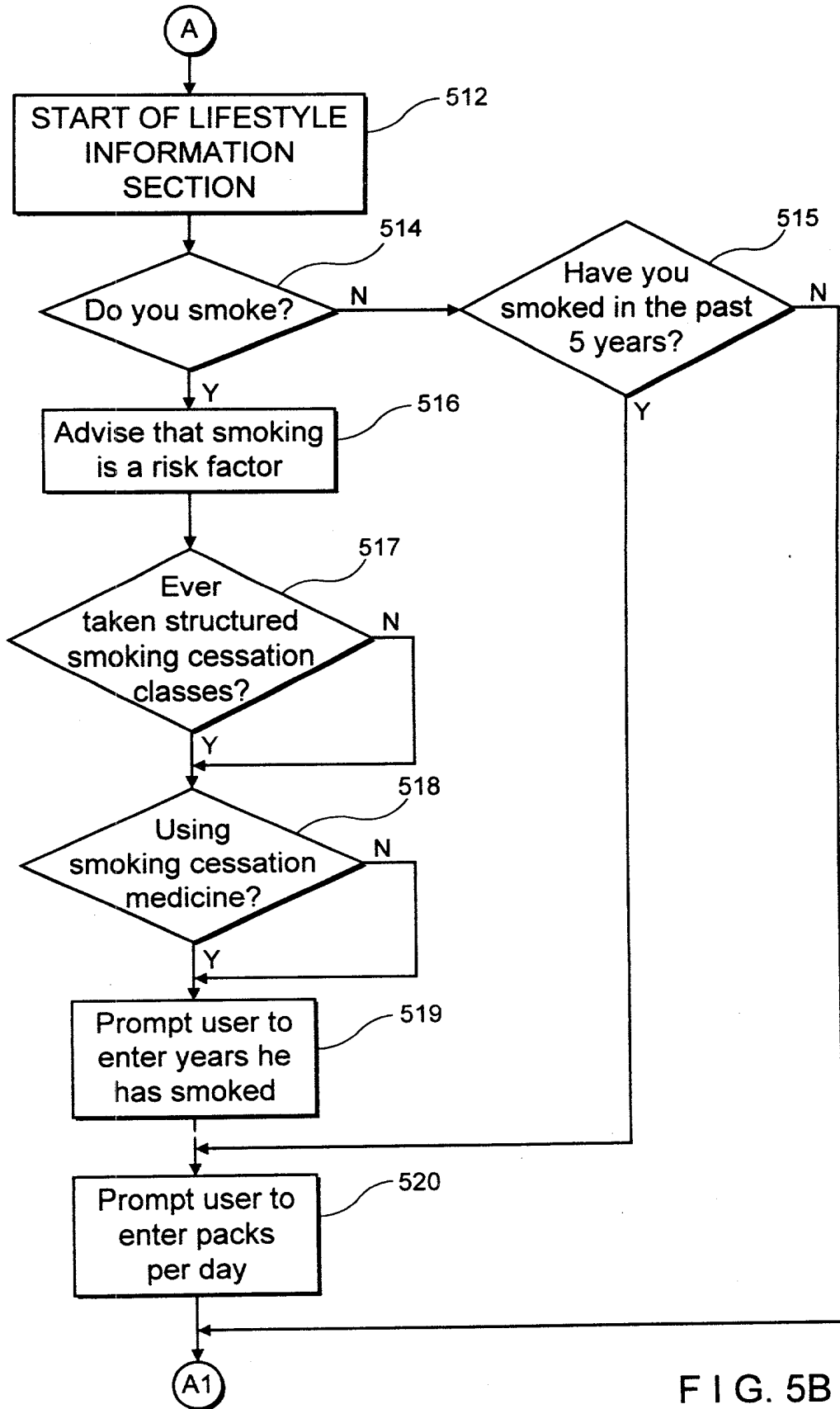


FIG. 5B

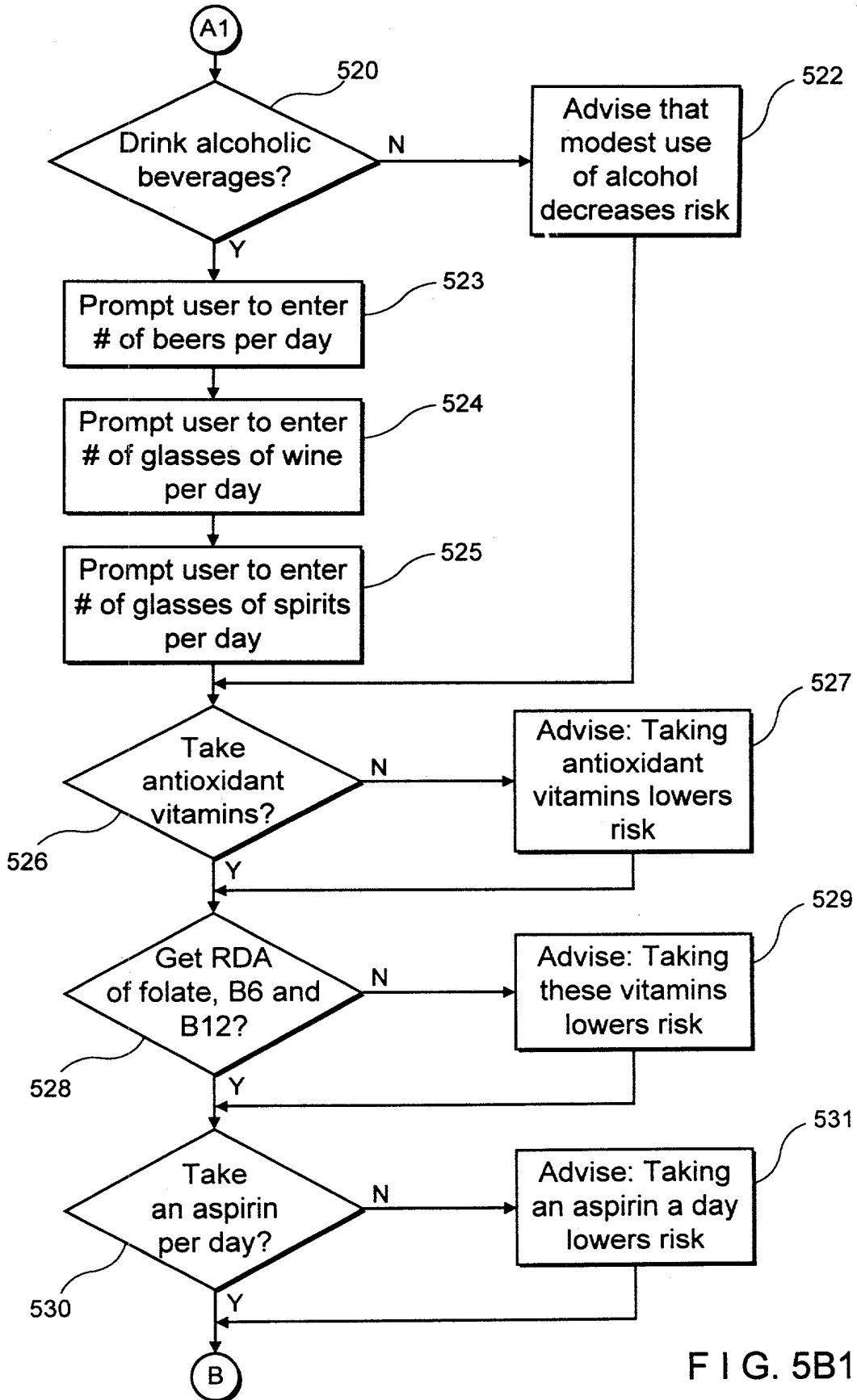
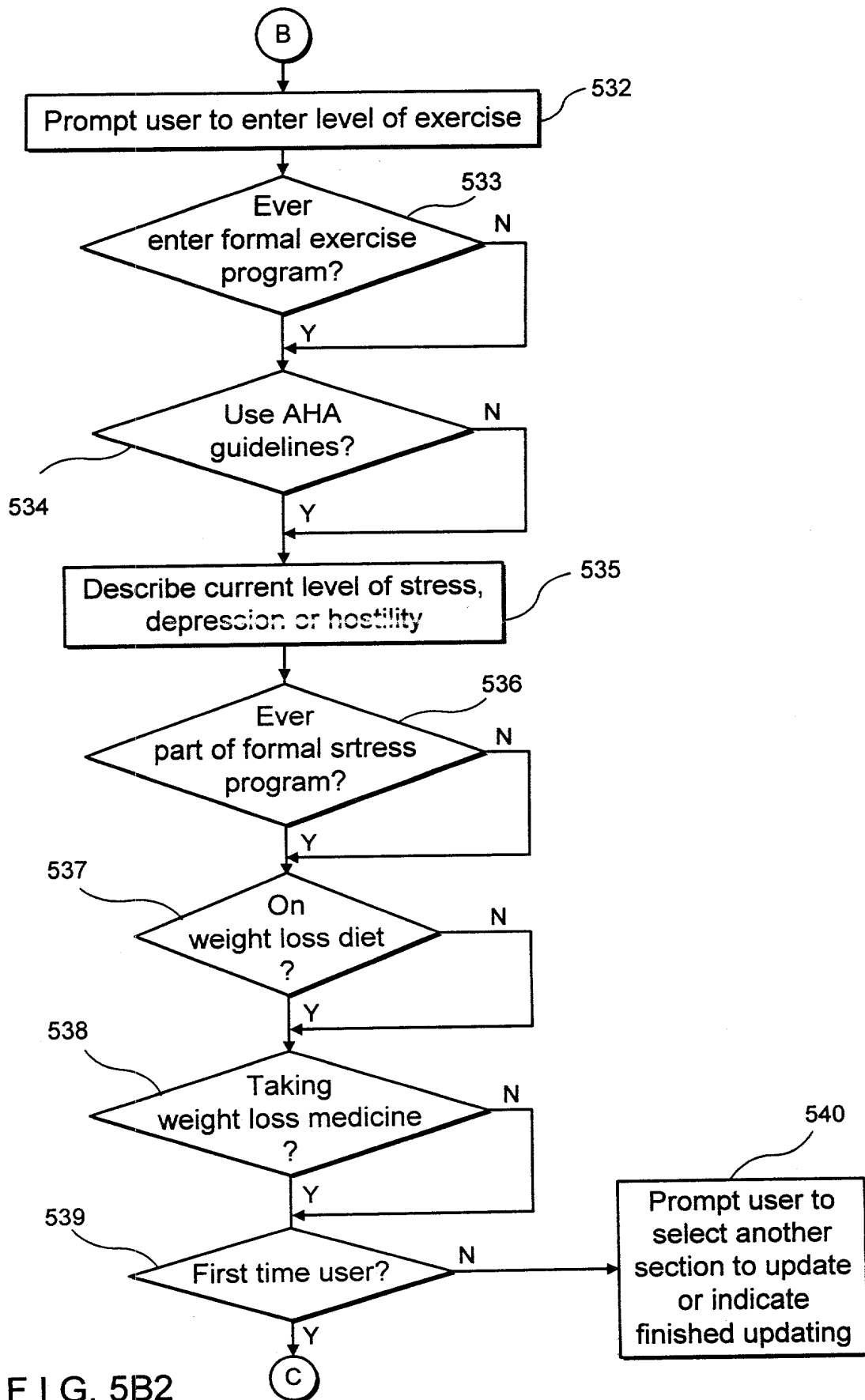


FIG. 5B1

09973995-022602



209220 555E/650

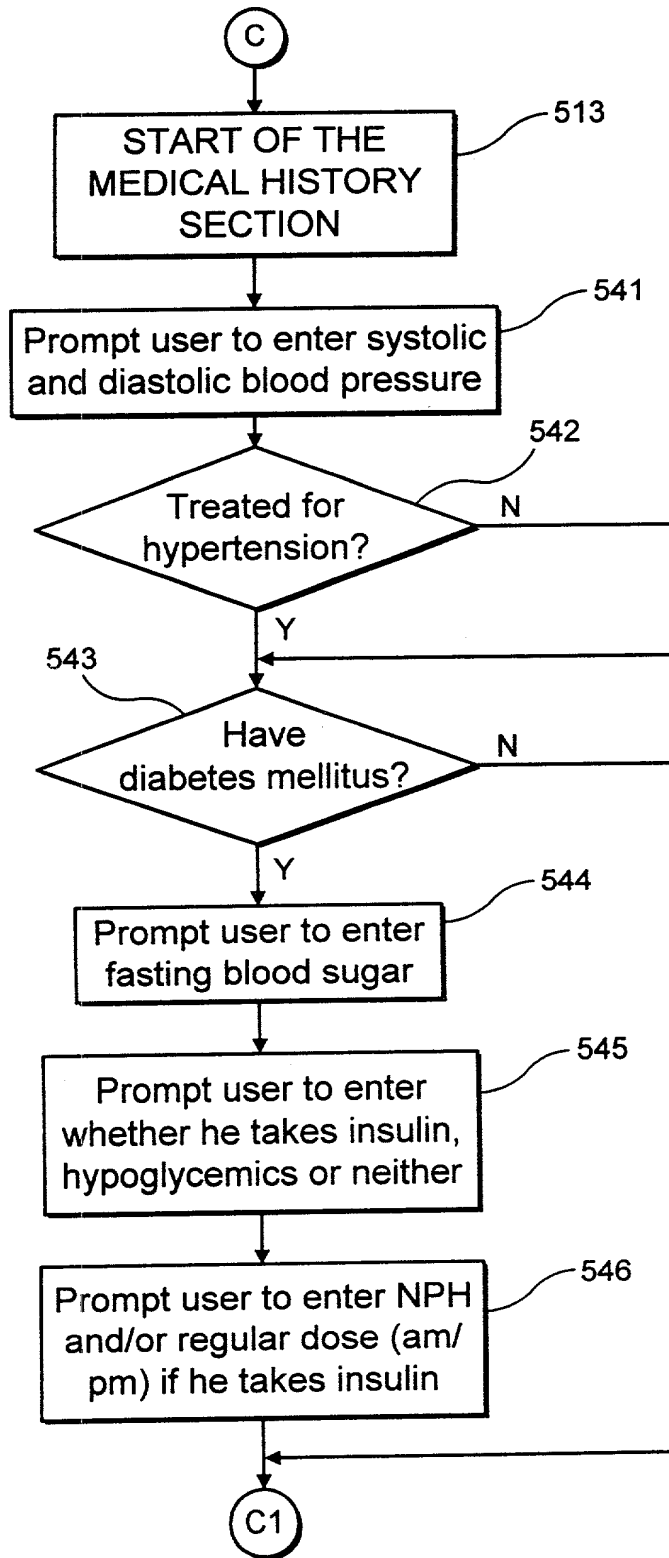


FIG. 5C

209220 555E2650

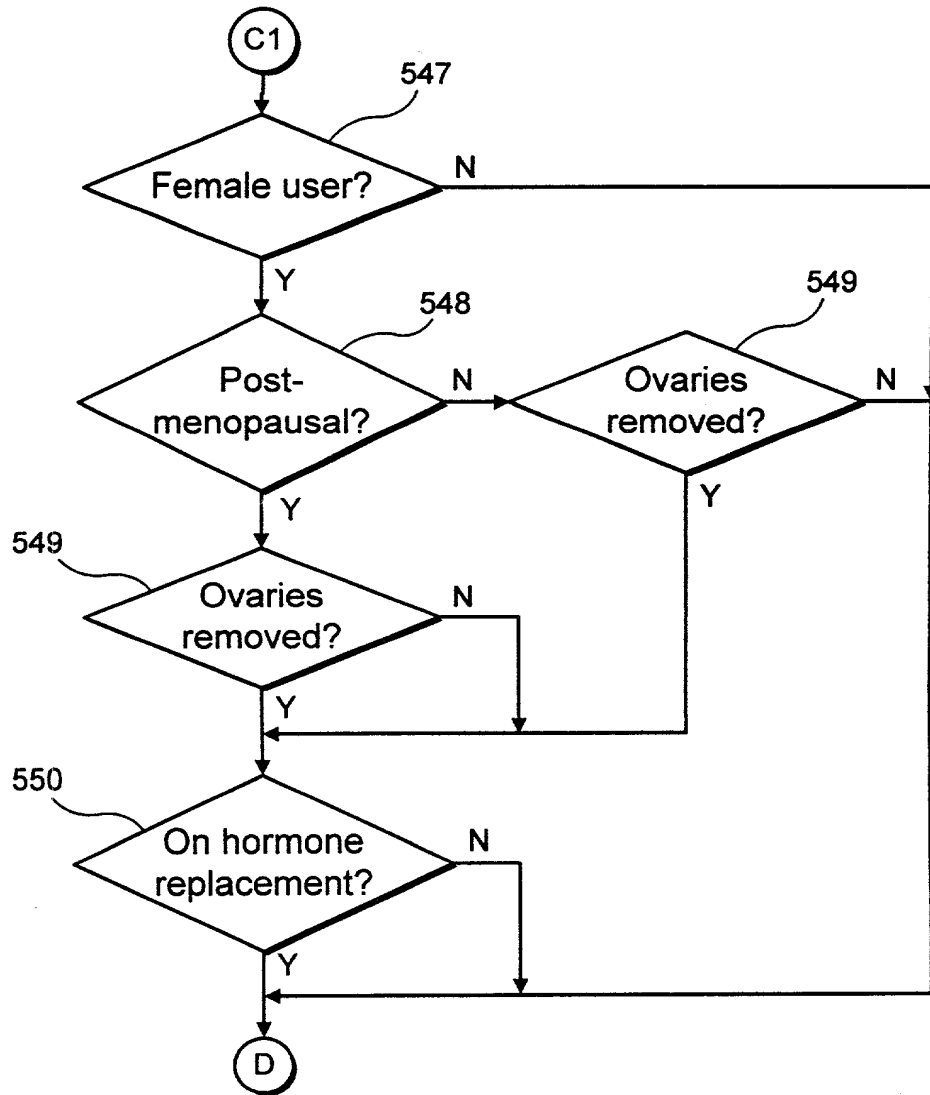


FIG. 5C1



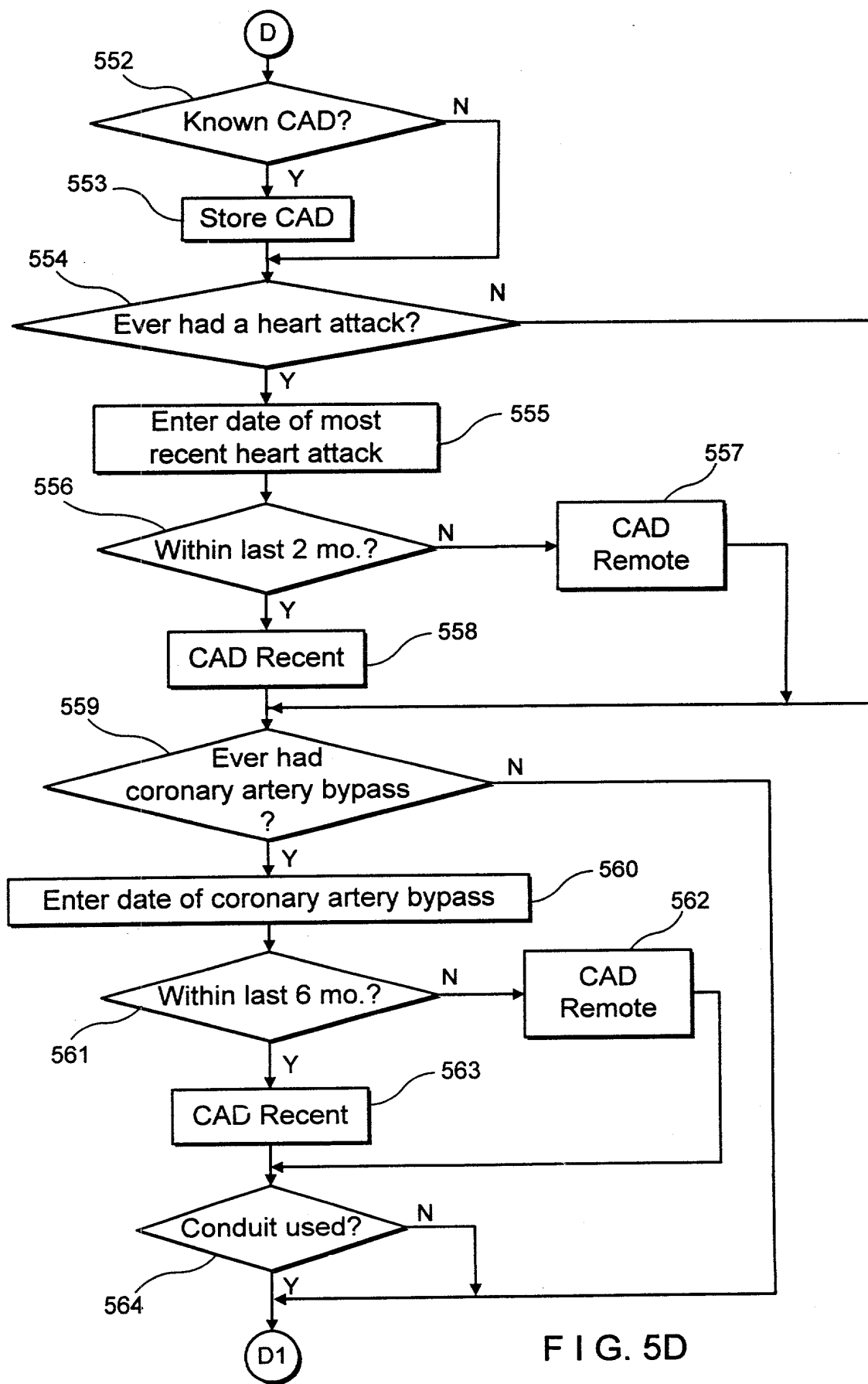


FIG. 5D

209220-565E/5660

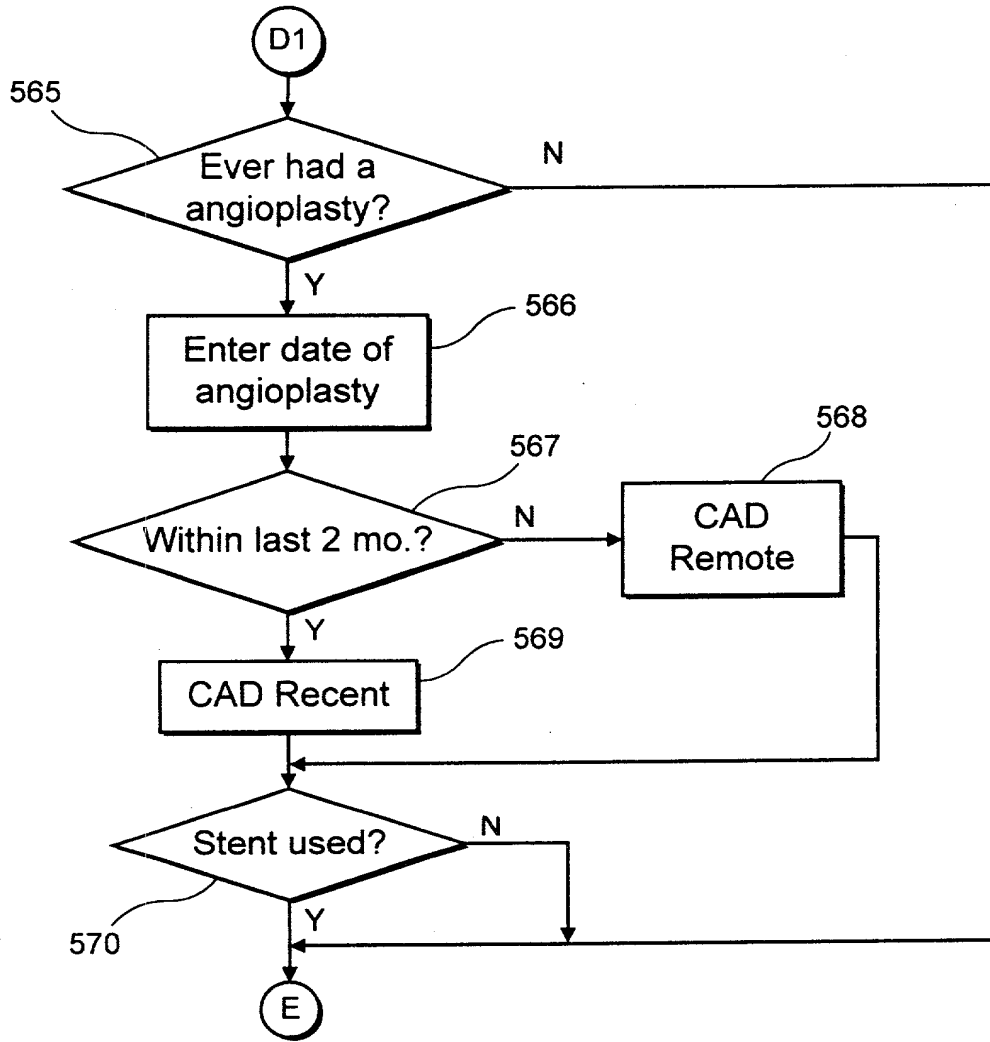


FIG. 5D1

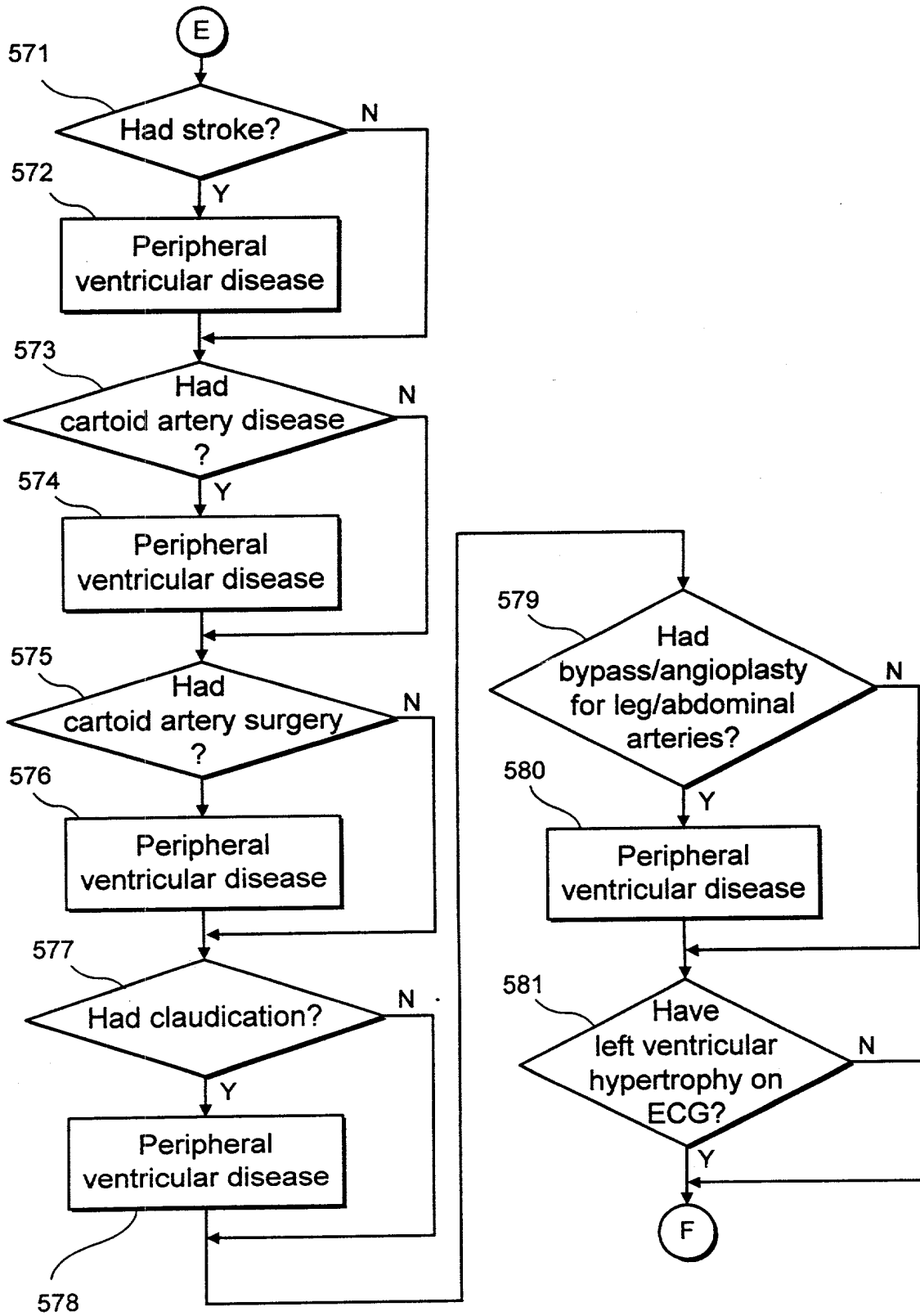


FIG. 5E

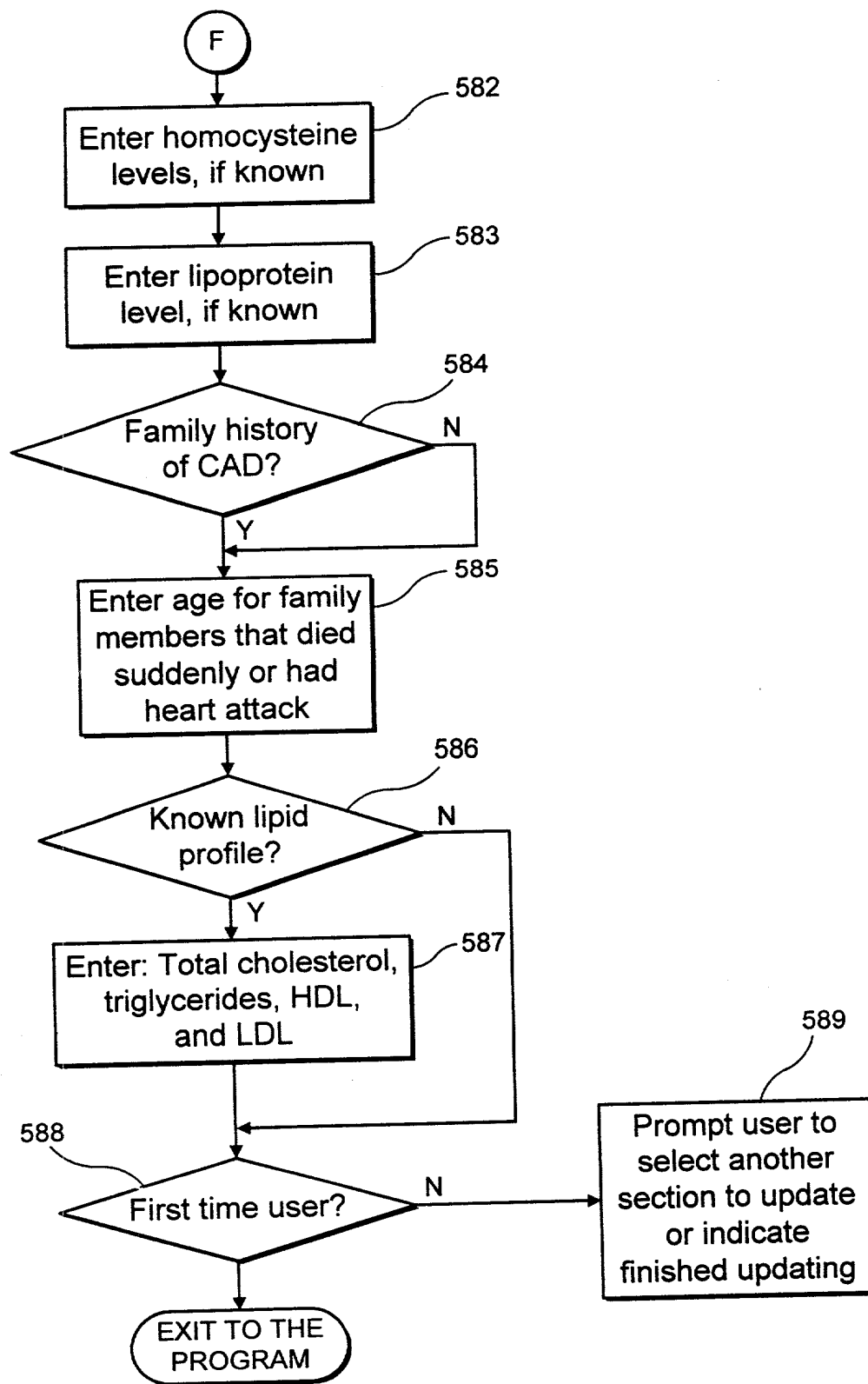


FIG. 5E1

209220-5666-660

### Physical Characteristics :

**How tall are you ?**

feet inches OR  Centimeters

505a 505b

**How much do you weigh ?**

expressed in ☒ pounds ☐ kilograms

506a

**Calculate Body Mass Index**  508

END THIS SESSION

FIG. 5G

209220-566E/660

Do you ever have chest pain that you think could be related to your heart, or do you have known coronary heart disease ?  
Yes

Are you having chest pain right now ?  
N

How tall are you ?  
69 inches

How much do you weigh ?  
160 pounds

Your Body Mass Index (BMI) is :  
23.7

Do you currently smoke?  
Yes

514

Are you in a smoking cessation class ?  
☐ Yes    ☒ No

Are you using smoking cessation medicine ?  
☐ Yes    ☒ No

How many years have you smoked ?  

4

 years

How many packs per day do you smoke ?  

1

 packs per d    ▶    END THIS SESSION

517

518

519

520

FIG. 5H

Do you ever have chest pain that you think could be related to your heart, **or** do you have known coronary heart disease ? **No**

**Risk factor modification section**

Your risk for coronary artery disease has to do with your lifestyle, your general health, and your medical history. The next section asks you questions about each of those things. Be sure to answer every question, and be as accurate as you can. The more accurate you are, the more helpful this tool is to you.

Proceed



END THIS SESSION

FIG. 5F

209220 5662660

Do you currently smoke?	Yes	
Are you in a smoking cessation class ?	No	
Are you using smoking cessation medicine ?	No	
How many years have you smoked ?	4	500
How many packs per day do you smoke ?	1	
Do you drink alcoholic beverages?	No	



Do you take anti-oxidant vitamins such as E, C, or beta carotene ?		526
<input type="radio"/> Yes	<input checked="" type="radio"/> No	
Do you get your recommended daily allowance of folate and vitamins B6 and B12		528
<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> Do not know
Do you take an aspirin every day ?		530
<input type="radio"/> Yes	<input type="radio"/> No	 

FIG. 5I



<b>Your Personal Risk Factor Summary</b>	<b>Now</b>	<b>A Month Ago</b>
Smoking 601	At Risk	At Risk 602
High LDL Cholesterol	Not at Risk	Not at Risk
Hypertension	Not at Risk	Not at Risk
Enlarged Heart	Not at Risk	Not at Risk
No Daily Aspirin 603	Not at Risk	At Risk 604
Diabetes	Not at Risk	Not at Risk
Low LDL Cholesterol	Not at Risk	Not at Risk
Obesity	Not at Risk	Not at Risk
Lack of Physical Activity	Not at Risk	At Risk
Menopause	Not at Risk	Not at Risk
Level of Stress	Not at Risk	Not at Risk
High Lipids (Triglycerides)	Not at Risk	Not at Risk
Excessive Lipoprotein (A) Level	Not at Risk	Not at Risk
Excessive Homocysteine Level / Low	Not at Risk	Not at Risk
Folate	Not at Risk	At Risk
Lack of Anti-oxidant Vitamin	Not at Risk	At Risk
Low Alcohol consumption	Not at Risk	Not at Risk
Advanced Age	Not at Risk	Not at Risk
Family History	Not at Risk	Not at Risk
Known Coronary Disease Known Peripheral Vascular Disease	Not at Risk	Not at Risk

**FIG. 6A**

**Watch out!** Cigarette smoking is unhealthy and a risk for getting heart disease. Please ask your doctor about methods for quitting.

Studies show that even a modest daily consumption of alcoholic beverages will help prevent Coronary Artery Disease.

**You should know:** Taking antioxidant vitamins could lower your risk of getting coronary artery disease.

**Did you know:** Doctors agree that taking daily aspirin could significantly reduce your chances of heart trouble.

**No exercise:** If you start exercising for thirty minutes or more at least three times every week, you will lower your risk of getting Coronary Artery Disease. Ask your doctor about good exercises to try.

**Watch out!**  
Feeling even a moderate amount of stress adds to your risk of Coronary Artery Disease. Ask your doctor for ideas about reducing stress.

**Watch out!** Your high blood pressure puts you at risk for developing Coronary Artery Disease. Ask your doctor for help in reducing your blood pressure.

### Homocysteine and heart disease:

Homocysteine is an amino acid in your blood. People who have higher than normal levels of homocysteine in their blood are at a higher risk for heart disease. Even if you do not have a higher than normal level of homocysteine, it is a good idea to get the RDA of folate - because folate (in vitamins B6, B12, and folic acid) can help keep homocysteine at a healthy level. If you aren't sure what your level of homocysteine is, you need to ask your doctor. Please also talk to your doctor about getting enough folic acid.

F I G. 6B

## **SMOKING CESSATION**

CIGARETTE SMOKING MAY BE THE MOST IMPORTANT, PREVENTABLE CAUSE OF ILLNESS AND DEATH IN THE UNITED STATES. THE DEPARTMENT OF HEALTH AND HUMAN SERVICES AGENCY FOR HEALTHCARE POLICY AND RESEARCH (AHCPR) AND THE NATIONAL INSTITUTE OF HEALTHCARE (NIH) BOTH HAVE WEBSITES WITH VALUABLE INFORMATION CONCERNING SMOKING CESSATION.

ALL VALID GUIDELINES STRESS THAT FIRST AND FOREMOST SMOKING CESSATION NEEDS TO BE IDENTIFIED BY THE SMOKER AS A CRITICAL GOAL. SMOKERS NEED TO HAVE SUPPORT FROM FAMILY, FRIENDS AND CO-WORKERS. THESE INDIVIDUALS NEED TO BE COMMITTED TO SMOKING CESSATION. THE GOAL NEEDS TO BE COMPLETE CESSATION OF ALL TOBACCO USE. STUDIES HAVE SHOWN THAT THE GREATEST CHANCE OF SUCCESS OCCURS WHEN STRUCTURED PROGRAMS ARE USED. THERE ARE MANY ORGANIZATIONS THAT HAVE WEBSITES THAT MAY BE HELPFUL E.G. AMERICAN HEART ASSOCIATION AND NIH.

**FIG. 6C**

20220705 09:00

## DYSLIPIDEMIA

DYSLIPIDEMIA MEANS AN ABNORMALITY OF ONE'S LIPID LEVELS. LIPID LEVELS ARE USUALLY BROKEN DOWN INTO FOUR COMPONENTS:

1. TOTAL CHOLESTEROL
2. LDL (LOW DENSITY LIPOPROTEIN)
3. HDL (HIGH DENSITY LIPOPROTEIN)
4. TRIGLYCERIDES

TARGET LEVELS FOR TOTAL CHOLESTEROL AND LDL ARE BASED ON ONE'S RISK FACTOR HISTORY. INDIVIDUALS WHO HAVE KNOWN CORONARY ARTERY DISEASE SUCH AS THOSE WHO HAVE HAD A HEART ATTACK, HEART SURGERY OR ANGIOPLASTY ARE URGED TO KEEP THEIR TOTAL CHOLESTEROL BELOW 180 AND THEIR LDL BELOW 100. CLINICAL TRIALS HAVE PROVEN THAT KEEPING ONE'S LEVELS AS LOW AS POSSIBLE, CERTAINLY AT THE LEVELS SUGGESTED WILL REDUCE THE RISK OF FUTURE EVENTS SUCH AS MYOCARDIAL INFARCTION AND DEATH. IN PEOPLE WHO HAVE KNOWN CORONARY ARTERY DISEASE, IF ONE'S BASELINE LDL LEVEL IS LESS THAN 130, IT IS POSSIBLE THAT WITH DIET, EXERCISE, AND WEIGHT CONTROL ONE COULD BRING ONE'S LDL LEVEL DOWN TO THE TARGET RANGE. IF, HOWEVER BASELINE LDL IS ABOVE 130 IT IS UNLIKELY THAT DIET ALONE WILL WORK. AT THIS POINT, MEDICATION IS USUALLY ADDED. YOU WILL NEED TO DISCUSS THIS WITH YOUR PHYSICIAN. INDIVIDUALS WHO DO NOT HAVE KNOWN CORONARY DISEASE OR DIABETES SHOULD CONSIDER CHOLESTEROL LEVELS BETWEEN 200 AND 240 AND LDL LEVELS BETWEEN 130 AND 160 TO BE BORDERLINE HIGH AND CERTAINLY ANY NUMBERS ABOVE THIS SHOULD BE TREATED UNDER THE CARE OF A HEALTHCARE PROFESSIONAL. INDIVIDUALS WHO HAVE A COMBINATION OF RISK FACTORS INCLUDING: ADVANCED AGE, HYPERTENSION, SMOKING OR POSITIVE FAMILY HISTORY SHOULD CONSIDER AS UPPER ACCEPTABLE LEVELS OF TOTAL CHOLESTEROL OF 200 AND LDL LEVELS OF 130 mg/dl. IN GENERAL, THE LOWER TOTAL CHOLESTEROL LEVEL AND THE LOWER LDL LEVEL, THE LOWER THE RISK OF FUTURE EVENTS SUCH AS HEART ATTACK OR STROKE. THIS IS TRUE EITHER IN THE PRIMARY PREVENTION MODE OR SECONDARY PREVENTION RISK ONCE CORONARY ARTERY DISEASE IS ALREADY KNOWN TO EXIST. HDL IS ANOTHER TYPE OF CHOLESTEROL. ANY LEVEL ABOVE 35 mg/dl IS CONSIDERED ABNORMAL AND SHOULD BE TREATED UNDER THE CARE OF A HEALTHCARE PROFESSIONAL. TRIGLYCERIDES IS ANOTHER FORM OF LIPIDS. LEVELS BETWEEN 200 mg PER DECILITER ARE CONSIDERED BORDERLINE HIGH, 400 - 1000 mg PER DECILITER ARE CONSIDERED HIGH AND OVER 1000 ARE CONSIDERED DANGEROUSLY HIGH. TREATMENT TO BRING LIPID LEVELS UNDER CONTROL USUALLY ENTAILS A COMBINATION OF DIET, EXERCISE, AND MEDICATION. DIET USUALLY INVOLVES SOME SORT OF A STEP 2 AHA DIET. THIS INVOLVES REDUCTION OF SATURATED FAT. MEDICATIONS CAN ALSO BE TAKEN TO DECREASE LIPID LEVELS. MEDICATIONS THEY USE TODAY MOSTLY INCLUDE THE STATINS. YOU WILL NEED TO DISCUSS THIS WITH YOUR PHYSICIAN.

FIG. 6D(1)

09973995-022602

TWO ADDITIONAL NOTES:

1. THE SOY BEAN INDUSTRY RECENTLY RECEIVED GOOD NEWS FROM THE FOOD AND DRUG ADMINISTRATION. EFFECTIVE OCTOBER 26, 1999 THE FDA WILL ALLOW FOODS CONTAINING SOY TO CLAIM THAT THEY ARE HEART HEALTHY.

THE SCIENCE BEHIND THIS IS THAT IT HAS BEEN CONCLUDED THAT A DIET CONTAINING 25 GRAMS OF SOY PROTEIN PER DAY IN ASSOCIATION WITH AN OTHERWISE LOW FAT DIET MAY REDUCE LDL CHOLESTEROL. LDL CHOLESTEROL IS THAT PORTION OF CHOLESTEROL THAT IS KNOWN TO BE SIGNIFICANT IN CAUSING CARDIOVASCULAR DISEASE.

IT IS REPORTED THAT A PRODUCT MUST CONTAIN AT LEAST 6.25 GRAMS OF SOY PROTEIN PER SERVING IN ORDER TO CARRY THE HEART HEALTHY LABEL. IT APPEARS THAT THERE WILL NOW BE A FRENZY OF FOOD PRODUCERS USING SOY AND TOUTING THEIR PRODUCT AS HEART HEALTHY. LIKEWISE, HEALTH CONSCIENTIOUS CONSUMERS ARE EXPECTED TO GRAVITATE TOWARDS THESE PRODUCTS. THE SOYBEAN INDUSTRY HAS ALSO PETITIONED THE FDA TO ACCEPT THE ARGUMENT THAT SOYBEAN PLANT CHEMICALS CALLED **ISOFLAVONES** LIKEWISE DECREASE THE RISK OF HEART DISEASE.

IT IS EXPECTED THAT THE FDA WILL DECIDE ON THIS ARGUMENT IN THE NEAR FUTURE.

IT SHOULD BE POINTED OUT THAT THE CHEMICALS CALLED **ISOFLAVONES** ARE ALSO PRESENT IN LARGE CONCENTRATIONS IN GRAPE SEED EXTRACT.

2. RECENT RESEARCH HAS FOUND THAT PEOPLE WITH MILD TO MODERATE ELEVATED CHOLESTEROL CAN REDUCE THESE LEVELS BY CONSUMING SOLUBLE FIBER AND ADHERING TO THE AMERICAN HEART ASSOCIATION STEP 1 DIET. CHOLESTEROL LEVELS MAY FALL AS MUCH AS 10%. THE MOST COMMON FORM OF SOLUBLE FIBER STUDIED IS PSYLLIUM. THIS IS A NATURALLY OCCURRING SUBSTANCE DERIVED FROM THE PSYLLIUM SEED.

**FIG. 6D(2)**

0997495-022602

### **HYPERTENSION (HIGH BLOOD PRESSURE)**

HYPERTENSION IS A MAJOR RISK FACTOR FOR CORONARY ARTERY DISEASE. HIGH BLOOD PRESSURE PROMOTES THE ATHEROSCLEROTIC PROCESS RESPONSIBLE FOR PLAQUES IN CORONARY ARTERIES.

RECENTLY THE WORLD HEALTH ORGANIZATION (WHO) AND THE INTERNATIONAL SOCIETY OF HYPERTENSION (ISH) PUBLISHED GUIDELINES FOR THE MANAGEMENT OF HYPERTENSION. THESE ORGANIZATIONS DEFINE HYPERTENSION AS A SYSTOLIC BLOOD PRESSURE OF 140 mm hg OR GREATER AND/OR DIASTOLIC BLOOD PRESSURE OF 90 mm hg OR GREATER. THESE VALUES ARE FOR PEOPLE WHO ARE NOT TAKING ANTI-HYPERTENSIVE MEDICATIONS.

CO-EXISTING RISK FACTORS MUST ALSO BE TAKEN INTO ACCOUNT WHEN DETERMINING THE SEVERITY OF HYPERTENSION. INDIVIDUALS WHO HAVE CO-EXISTING RISK FACTORS SUCH AS DIABETES, HEART FAILURE OR RENAL FAILURE SHOULD HAVE TREATMENT AIMED AT BRINGING THE SYSTOLIC BLOOD PRESSURE TO LESS THAN 130 mm hg AND DIASTOLIC PRESSURE TO LESS THAN 85 mm hg.

IT SHOULD ALSO BE NOTED THAT THERE IS NOT A "THRESHOLD" EFFECT IN THE INTERACTION OF BLOOD PRESSURE AS IT RELATES TO THE DEVELOPMENT OF CORONARY ARTERY DISEASE. THAT IS TO SAY WHILE 140/90 IS A NUMBER TO CONSIDER FOR CLASSIFYING ONE AS HYPERTENSIVE, SYSTOLIC OF 130 TO 140 AND DIASTOLIC PRESSURES OF 80 TO 90 ARE ALSO CONSIDERED BORDERLINE HIGH AND SHOULD BE TAKEN SERIOUSLY. IN THIS SAME LIGHT, AS BLOOD PRESSURE INCREASES TO HIGHER LEVELS, ABOVE 140/90, THE RISK FOR ATHEROSCLEROSIS AND END ORGAN DETRIMENTAL EFFECTS INCREASES. AGAIN, THIS BECOMES MARKEDLY SO WHEN ADDITIONAL FACTORS ARE PRESENT.

THERE ARE MANY DIFFERENT DRUGS AVAILABLE TO TREAT HYPERTENSION. THE DIAGNOSIS AND TREATMENT OF HYPERTENSION IS A COMPLEX AREA AND ABSOLUTELY NEEDS TO BE UNDER THE GUIDANCE OF A HEALTHCARE PROFESSIONAL.

**FIG. 6E**

### **LEFT VENTRICULAR HYPERTROPHY**

LEFT VENTRICULAR HYPERTROPHY IS ENLARGEMENT OF THE HEART, USUALLY A CONSEQUENCE OF HYPERTENSION (HIGH BLOOD PRESSURE). THIS IS ASSOCIATED WITH INCREASED RISK OF ADVERSE CARDIOVASCULAR EVENTS SUCH AS HEART ATTACK, SUDDEN DEATH AND HEART FAILURE.

**FIG. 6F**

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### **ANTI-PLATELET/ANTI-THROMBOTIC AGENTS (ASPIRIN)**

ASPIRIN WORKS BY INHIBITING PLATELETS. THIS RESULTS IN AN ANTI-THROMBOTIC (ANTI-CLOTTING) EFFECT. OTHER AGENTS HAVE BEEN USED BUT THEY EITHER DO NOT HAVE THE DESIRED EFFECT OR HAVE INCREASED COMPLICATIONS.

INDIVIDUALS WHO HAVE CHRONIC STABLE ANGINA EXPERIENCE SIGNIFICANT DECREASE IN ADVERSE CARDIOVASCULAR EVENTS IF THEY USE ASPIRIN.

IF AN INDIVIDUAL IS SUFFERING FROM UNSTABLE ANGINA, ASPIRIN SIGNIFICANTLY DECREASES THE RISK OF HEART ATTACK AND DEATH.

THIS IS CALLED SECONDARY PREVENTION. IN PATIENTS WITH KNOWN CORONARY ARTERY DISEASE, ASPIRIN IS RECOMMENDED IN A DOSE OF 75 TO 325 mg DAILY. THERE ARE RISKS AND CONTRAINDICATIONS TO THIS TREATMENT, THEREFORE THIS SHOULD BE DISCUSSED WITH YOUR HEALTHCARE PROFESSIONAL.

THE ISSUE CONCERNING USING ASPIRIN IN INDIVIDUALS WITHOUT KNOWN CORONARY ARTERY DISEASE OR WITH NO ANGINA (PRIMARY PREVENTION) IS STILL AN OPEN QUESTION. MEN OVER THE AGE 50 WITH OTHER RISK FACTORS FOR THE DEVELOPMENT OF CORONARY DISEASE APPEAR TO HAVE THE GREATEST BENEFIT. THE GREATER THE RISK FACTOR ANALYSIS THE MORE LIKELY ASPIRIN WOULD BE TO THEIR ADVANTAGE.

BLEEDING IS A RISK WHEN ONE TAKES ASPIRIN. THIS IS PARTICULARLY SO WITH HYPERTENSION (HIGH BLOOD PRESSURE). THEREFORE, ASPIRIN USE AS PRIMARY PREVENTION SHOULD ONLY BE UNDER THE GUIDANCE OF A HEALTHCARE PROFESSIONAL.

**FIG. 6G**

## DIABETES

THERE IS STRONG OBSERVATIONAL DATA THAT THE DIABETES MELLITUS, BOTH TYPE I (INSULIN DEPENDENT) AND TYPE II (NON-INSULIN DEPENDENT) ARE STRONG RISK FACTORS FOR THE DEVELOPMENT OF CORONARY ARTERY DISEASE. THERE IS NOT YET CONVINCING DATA THAT BETTER GLUCOSE CONTROL WILL REDUCE THE INCIDENCE OF CORONARY DISEASE OR ALTER ITS MANIFESTATIONS OF ANGINA, HEART ATTACK OR DEATH. IT IS STILL HIGHLY RECOMMENDED BY THE AMERICAN HEART ASSOCIATION THAT GLUCOSE IN DIABETICS BE HELD UNDER TIGHT CONTROL.

**FIG. 6H**

## OBESITY

THE OCTOBER 27, 1999 ISSUE OF THE JOURNAL OF AMERICAN HEART ASSOCIATION CLEARLY SHOWS THAT INCREASING BMI (BODY MASS INDEX, A MEASURE OF OBESITY) IS RELATED TO INCREASED RISK OF CORONARY ARTERY DISEASE AND INCREASED RISK OF DEATH.

OBESITY HAS A STRONG INTERACTION WITH OTHER MAJOR RISK FACTORS FOR CORONARY ARTERY DISEASE SUCH AS HYPERTENSION, GLUCOSE INTOLERANCE (DIABETES MELLITUS), LOW HDL AND ELEVATED TRIGLYCERIDES. IT IS PRIMARILY THROUGH THESE ASSOCIATIONS THAT OBESITY MEDIATES SUCH A DETRIMENTAL EFFECT. VISCERAL OR CENTRAL ABDOMINAL OBESITY MARKEDLY INCREASES THIS RISK. THIS IS MEASURED BY THE WAIST CIRCUMFERENCE OR WAIST TO HIP RATIO.

STUDIES HAVE SHOWN A MARKED INCREASE IN THE NUMBER OF OBESE INDIVIDUALS IN OUR SOCIETY. IN FACT, OBESITY IS NOW CONSIDERED A MAJOR PUBLIC HEALTH PROBLEM IN ALL REGIONS OF THE UNITED STATES.

WEIGHT REDUCTION TO IDEAL BODY WEIGHT IS RECOMMENDED AND THIS SHOULD BE DONE UNDER THE DIRECTION OF YOUR HEALTHCARE PROFESSIONAL.

**FIG. 6I**



## CARDIOVASCULAR HEALTH AND PHYSICAL ACTIVITY

THE NATIONAL INSTITUTE OF HEALTH ISSUED A CONSENSUS STATEMENT CONCERNING PHYSICAL ACTIVITY AS IT RELATES TO CARDIOVASCULAR HEALTH. THEY SET AS A GOAL TO ACCUMULATE AT LEAST 30 MINUTES OF MODERATELY INTENSE PHYSICAL ACTIVITY ON MOST, IF NOT ALL DAYS OF THE WEEK.

WHAT EXACTLY DOES THIS MEAN? FIRST OF ALL, ONE NEEDS TO DEFINE PHYSICAL ACTIVITY AS IT RELATES TO THE CONCEPT OF EXERCISE. PHYSICAL ACTIVITY IS DEFINED AS "BODILY MOVEMENT PRODUCED BY SKELETAL MUSCLE THAT REQUIRES ENERGY EXPENDITURE". EXERCISE ON THE OTHER HAND IS "A PLANNED, STRUCTURED AND REPETITIVE BODILY MOVEMENT DONE TO IMPROVE OR MAINTAIN ONE OR MORE COMPONENTS OF PHYSICAL FITNESS". THESE DEFINITIONS ARE BASED ON NIH GUIDELINES.

THEREFORE, TO SATISFY THE NIH GUIDELINES, AMERICANS NEED TO INCREASE THEIR LEVELS OF PHYSICAL ACTIVITY TO 30 MINUTES A DAY. THIS COULD TAKE MANY FORMS SUCH AS BRISK WALKING, CYCLING, YARD WORK OR HOME REPAIR, ALL COULD BE CLASSIFIED AS PHYSICAL ACTIVITY. TO MEET NIH GUIDELINES THIS ACTIVITY SHOULD BE DONE WITH MODERATE EXERTION. CLIMBING STAIRS RATHER THAN TAKING THE ELEVATOR, WALKING BRISKLY FROM A PARKED CAR IN A PARKING LOT VS. USING VALET PARKING AND CARRYING ITEMS RATHER THAN USING A CART, ALL WOULD ALSO QUALIFY.

EXERCISE USUALLY INVOLVES A MORE STRUCTURED PROGRAM OF PHYSICAL ACTIVITY. THESE PROGRAMS LIKEWISE WOULD QUALIFY ACCORDING TO NIH GUIDELINES, IF DONE FOR 30 MINUTES AT MODERATE INTENSITY.

WHAT SPECIFICALLY ARE THE ADVANTAGES OF PHYSICAL ACTIVITY AS THEY RELATE TO CARDIOVASCULAR HEALTH?

1. PEOPLE THAT ARE MORE PHYSICALLY ACTIVE HAVE BETTER INDICES OF OBESITY.
  2. HDL CHOLESTEROL LEVELS APPEAR TO BE HIGHER IN PEOPLE WHO ARE PHYSICALLY ACTIVE.
  3. DIABETES CONTROL USUALLY IS BETTER IN MORE PHYSICALLY ACTIVE PEOPLE.
- HIGH BLOOD PRESSURE IS ALSO EASIER TO CONTROL IN THE ACTIVE PERSON.

WHAT ARE THE ANTICIPATED BENEFITS OF PHYSICAL ACTIVITY IN PEOPLE WITH CARDIOVASCULAR DISEASE?

STUDIES SHOW THAT PEOPLE WITH KNOWN CORONARY ARTERY DISEASE TEND TO SHOW A REDUCTION IN HEART ATTACK RATES, REDUCTION IN DEATH RATES AND INCREASE IN EXERCISE CAPACITY. THESE BENEFITS MAY ALSO HOLD TRUE FOR PEOPLE THAT DO NOT HAVE KNOWN CORONARY ARTERY DISEASE.

**FIG.6J(1)**

OTHER POINTS THAT NEED TO BE CONSIDERED:

1. A STRUCTURED EXERCISE PROGRAM IS NOT NECESSARILY REQUIRED TO GAIN THE BENEFIT OF PHYSICAL ACTIVITY, HOWEVER REGULAR SUSTAINED ACTIVITY OF MODERATE INTENSITY IS REQUIRED.
  2. THIS PHYSICAL ACTIVITY MUST BE DONE ON A REGULAR, FREQUENT BASIS IN ORDER TO MAINTAIN THE BENEFITS.
  3. PEOPLE WITH CARDIOVASCULAR DISEASE SHOULD ABSOLUTELY BE UNDER THE CARE OF A PHYSICIAN BEFORE THEY START A PROGRAM OF INCREASED PHYSICAL ACTIVITY. THERE ARE MANY PROGRAMS IN MOST COMMUNITIES TO ACCOMPLISH THIS. PEOPLE IN THIS CATEGORY SHOULD BE URGED TO TALK TO THEIR PHYSICIANS.
- BELOW ARE A NUMBER OF ACTIVITIES AND AN INDEX OF THEIR CALORIC EXPENDITURE FOR AN AVERAGE 150 lb PERSON ACCORDING TO THE AMERICAN HEART ASSOCIATION.

**FIG. 6J(2)**

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## CARDIOVASCULAR HEALTH AND PHYSICAL ACTIVITY

OTHER POINTS THAT NEED TO BE CONSIDERED:

1. A STRUCTURED EXERCISE PROGRAM IS NOT NECESSARILY REQUIRED TO GAIN THE BENEFIT OF PHYSICAL ACTIVITY, HOWEVER REGULAR SUSTAINED ACTIVITY OF MODERATE INTENSITY IS REQUIRED.
2. THIS PHYSICAL ACTIVITY MUST BE DONE ON A REGULAR, FREQUENT BASIS IN ORDER TO MAINTAIN THE BENEFITS.
3. PEOPLE WITH CARDIOVASCULAR DISEASE SHOULD ABSOLUTELY BE UNDER THE CARE OF A PHYSICIAN BEFORE THEY START A PROGRAM OF INCREASED PHYSICAL ACTIVITY. THERE ARE MANY PROGRAMS IN MOST COMMUNITIES TO ACCOMPLISH THIS. PEOPLE IN THIS CATEGORY SHOULD BE URGED TO TALK TO TEIR PHYSICIANS. BELOW ARE A NUMBER OF ACTIVITIES AND AN INDEX OF THEIR CALORIC EXPENDITURE FOR AN AVERAGE 150 lb PERSON ACCORDING TO THE AMERICAN HEART ASSOCIATION.

<u>ACTIVITY</u>		<u>CALORIES</u>
WALKING	3 mph	320
SWIMMING	50 yds/min	500
RUNNING	7 mph	920
JUMP ROPE		750
BICYCLING	12 mph	410

**FIG. 6K**

**HORMONE REPLACEMENT THERAPY (HRT)  
IN POST-MENOPAUSAL WOMEN**

THE AMERICAN HEART ASSOCIATION'S PUBLICATION (2000 HEART AND STROKE STATISTICAL UPDATE) SHOWS THAT WOMEN HAVE SIGNIFICANT RISK FOR CORONARY ARTERY DISEASE AND ITS CONSEQUENCES. APPROXIMATELY 230,000 WOMEN DIE EACH YEAR FROM CORONARY ARTERY DISEASE. THIS IS THE #1 CAUSE OF DEATH IN AMERICAN WOMEN. CLEARLY, CORONARY ARTERY DISEASE IS A MAJOR HEALTH RISK FOR WOMEN. HOWEVER, IN GENERAL THE ONSET OF CORONARY DISEASE IN WOMEN APPEARS TO BE 10 - 15 YEARS LATER THAN IN MEN. ALTHOUGH NOT COMPLETELY UNDERSTOOD, THIS IS PRESUMABLY DUE TO THE PROTECTIVE EFFECT OF THE SEX HORMONE ESTROGEN PRESENT IN PRE-MENOPAUSAL WOMEN. THUS, WOMEN WHO ARE POST-MENOPAUSAL OR LACK ESTROGEN DUE TO OVARY REMOVAL DEVELOP THE SAME RISK AS MEN AS IT RELATES TO THE DEVELOPMENT OF CORONARY ARTERY DISEASE. THIS HAS PROMPTED THE USE OF HRT TO COMBAT THIS RISK.

RECENT DISCUSSION IN THE JANUARY 26TH ISSUE OF THE JOURNAL OF AMERICAN MEDICAL ASSOCIATION RAISES A RED FLAG CONCERNING HRT IN POST-MENOPAUSAL WOMEN. COMBINED ESTROGEN AND PROGESTERONE USED LONG TERM SIGNIFICANTLY INCREASES THE RISK OF DEVELOPING BREAST CANCER BEYOND THE RISK OF ESTROGEN USED ALONE. THE AMERICAN HEART ASSOCIATION STRONGLY SUGGESTS THAT RISK FACTOR MANAGEMENT SUCH AS SMOKING CESSATION, BLOOD PRESSURE CONTROL AND LIPID MANAGEMENT SHOULD BE FIRST LINE MANAGEMENT PRIOR TO HRT AS IT RELATES TO CARDIOVASCULAR RISK FACTOR CONTROL.

THERE ARE RISKS AND BENEFITS OF HRT AND THERE ARE DIFFERENT TYPES OF HRT. THEREFORE, THIS MODALITY SHOULD ONLY BE USED UNDER THE STRICT GUIDANCE AND CONTROL OF YOUR HEALTHCARE PROFESSIONAL.

**FIG.6L**

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### **ANGER AND STRESS AFFECT THE CARDIOVASCULAR SYSTEM**

MORE AND MORE DATA IS BECOMING AVAILABLE SHOWING THAT FEELINGS OF ANGER AND HOSTILITY AND FEELINGS OF DEPRESSION CAN NEGATIVELY IMPACT ONE'S CARDIOVASCULAR HEALTH. IT IS NOT KNOWN FOR SURE, BUT IT APPEARS THESE FEELINGS OF ANGER AND STRESS SET OFF PHYSIOLOGIC RESPONSES IN THE BODY THAT CAN RESULT IN MYOCARDIAL ISCHEMIA. THIS CAN TAKE THE FORM OF EITHER ANGINA OR ACTUALLY A HEART ATTACK. STUDIES HAVE SHOWN THAT SHORTLY AFTER HAVING AN ARGUMENT OR DEVELOPING FEELINGS OF ANGER DUE TO OTHER CONFLICTS, SUCH AS WITH FAMILY OR IN THE WORKPLACE, CAN RESULT IN CARDIOVASCULAR MANIFESTATIONS. INTERESTINGLY, IT APPEARS THAT TAKING AN ASPIRIN PRIOR TO THESE EVENTS CAN PROTECT AGAINST THESE EFFECTS. SIMILARLY, FEELINGS OF DEPRESSION APPEAR TO BE A STRONG PREDICTOR OF CARDIOVASCULAR DISEASE.

THERE IS SOME RECENT DATA DEMONSTRATING THAT COUNSELING AND BEHAVIOR MODIFICATION AS IT RELATES TO ANGER AND DEPRESSION MAY IMPROVE ONE'S CARDIOVASCULAR HEALTH.

**FIG. 6M**

### **LIPOPROTEIN (A)**

RETROSPECTIVE STUDIES OF POPULATIONS OF PEOPLE INDICATE THAT HIGH LEVELS OF LIPOPROTEIN (A) ARE ASSOCIATED WITH INCREASED RISK OF PREMATURE CORONARY ARTERY DISEASE. CURRENTLY ONLY THE DRUG NIACIN IS KNOWN TO REDUCE LIPOPROTEIN LEVELS. IT IS NOT KNOWN WHETHER THIS REDUCTION IN LIPOPROTEIN (A) LEVELS CAN DECREASE THE INSTANCES OF CORONARY ARTERY DISEASE. PROSPECTIVE CLINICAL STUDIES WILL BE REQUIRED.

**FIG. 6N**

## HOMOCYSTEINE

THERE ARE MANY RISK FACTORS INFLUENCING THE DEVELOPMENT OF ATHEROSCLEROTIC VASCULAR DISEASE. ANOTHER RELATIVELY NEWLY RECOGNIZED RISK FACTOR FOR CORONARY DISEASE IS ELEVATED BLOOD LEVELS OF HOMOCYSTEINE. HOMOCYSTEINE IS AN AMINO ACID IN THE BLOODSTREAM. IT HAS BEEN KNOWN FOR YEARS THAT THERE IS A CONGENITAL DISEASE RESULTING IN EXTREMELY HIGH LEVELS OF HOMOCYSTEINE. THESE PEOPLE ARE KNOWN TO BE AT A VERY HIGH RISK FOR CORONARY DISEASE. MORE RECENTLY IT HAS BEEN RECOGNIZED THAT EVEN MINOR ELEVATIONS OF HOMOCYSTEINE MAY ALSO INCREASE ONE'S RISK OF CORONARY ARTERY DISEASE. THIS IS PARTICULARLY SO WITH PATIENTS WHO HAVE OTHER POSITIVE RISK FACTORS FOR DEVELOPING THIS DISEASE. A HYPOTHESIS IS THAT HOMOCYSTEINE DAMAGES ARTERIAL WALLS MAKING THEM MORE LIKELY TO BECOME TARGETS FOR THE DEVELOPMENT OF CORONARY ARTERY DISEASE.

THERE IS ONE ESTIMATE THAT 20 MILLION AMERICANS HAVE ELEVATED LEVELS OF HOMOCYSTEINE. THE GOOD NEWS IS THAT THERE ARE WAYS TO LOWER ONE'S HOMOCYSTEINE LEVELS. THIS INVOLVES THE INGESTION OF FOLIC ACID, VITAMIN B6 AND B12. ONE WAY TO ACCOMPLISH THIS IS BY EATING LEAFY GREEN VEGETABLES, FRUIT, AND LEGUMES. ANOTHER VERY EFFECTIVE WAY IS TO EAT A FORTIFIED CEREAL. IN FACT THE ONLY FOOD THAT CONTAINS ALL THREE VITAMINS IS A READY TO EAT, FORTIFIED CEREAL.

WHAT IS FOLIC ACID? FOLIC ACID IS ONE OF THE B VITAMINS. IT IS FOUND IN GREEN LEAFY VEGETABLES. THE BODY USES FOLIC ACID TO BUILD NEW CELLS AND REPAIR DAMAGED CELLS. IN ADDITION, IT IS ALSO ESSENTIAL FOR CONSTRUCTION BY THE BODY OF DNA. THE DAILY RECOMMENDED VALUE OF FOLIC ACID IS 400 MICROGRAMS. AS MENTIONED ABOVE, GREEN LEAFY VEGETABLES HAVE LARGE AMOUNTS OF FOLIC ACID. OTHER SOURCES INCLUDE: NUTS, LEGUMES, CERTAIN FRUIT AND GRAIN FOODS.

IF ONE WISHES TO OBTAIN THESE VITAMINS (FOLIC ACID, VITAMIN B6, VITAMIN B12) BY EATING VEGETABLES, FRUIT AND LEGUMES, IT IS IMPORTANT TO UNDERSTAND THAT PROLONGED HEATING OR BOILING OF THESE SUBSTANCES OR MICROWAVE HEATING MAY REDUCE LEVELS OF THESE VITAMINS.

INDIVIDUALS WHO INGEST THESE THREE IMPORTANT VITAMINS ARE USUALLY WELL PROTECTED AND THEREFORE ACTUALLY MEASURING BLOOD LEVELS IS NOT REQUIRED. A RECENTLY PERFORMED STUDY PUBLISHED IN THE NEW ENGLAND JOURNAL OF MEDICINE SHOWED AN AVERAGE OF 11% DECREASE IN HOMOCYSTEINE LEVELS WITH A 15 WEEK COURSE OF EATING 3/4 CUP OF TOTAL CEREAL PER DAY. IT SHOULD BE NOTED HOWEVER THAT THERE ARE NO WELL CONTROLLED STUDIES CONCLUSIVELY SHOWING THAT DECREASING HOMOCYSTEINE LEVELS WILL RESULT IN A LOWER LEVEL OF CORONARY ARTERY DISEASE. THESE TYPES OF STUDIES ARE CURRENTLY ONGOING.

**FIG. 60**

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**VITAMIN E AND OTHER ANTIOXIDANT VITAMINS  
MAY AFFECT CORONARY DISEASE**

THERE IS MUCH EVIDENCE THAT CHOLESTEROL IS A MAJOR COMPONENT OF ATHEROSCLEROTIC PLAQUE BUILD-UP. CHOLESTEROL IS CARRIED TO THE PLAQUE IN THE FORM OF LDL CHOLESTEROL. THERE IS EVIDENCE THAT THIS CHOLESTEROL MUST FIRST BE OXIDIZED BEFORE IT ACTUALLY ENTERS THE PLAQUE AND PARTICIPATES IN PLAQUE BUILD-UP. THERE IS SPECULATION THAT ANTI-OXIDANT VITAMINS SUCH AS VITAMIN C, E, AND BETA-CAROTENE MAY PREVENT PLAQUE FORMATION BY INTERFERING WITH THIS OXIDATION. TO PUT IT ANOTHER WAY, IT IS POSSIBLE THAT ANTI-OXIDANT VITAMINS CAN PREVENT OR REDUCE CORONARY ARTERY DISEASE.

THE EVIDENCE FOR THIS IS STRONGEST FOR VITAMIN E. THERE ARE SOME STUDIES THAT SUGGEST THAT VITAMIN E TAKEN IN RELATIVELY LARGE DOSES AS A DIETARY SUPPLEMENT MAY FUNCTION TO INHIBIT THE ATHEROSCLEROTIC PROCESS. IT SHOULD BE NOTED THAT ONE CANNOT GET ENOUGH VITAMIN E FROM NORMAL DIETARY INTAKE TO BE EFFECTIVE, THEREFORE DIET SUPPLEMENTATION MUST BE USED. THE EVIDENCE FOR VITAMIN C AND BETA-CAROTENE FUNCTIONING IN THIS MODE IS QUITE A BIT LESS.

IT SHOULD BE NOTED THAT THERE ARE ONGOING STUDIES TRYING TO ESTABLISH WHETHER ANTI-OXIDANT VITAMINS, PARTICULARLY VITAMIN E, ARE IN FACT USEFUL FOR DECREASING CORONARY DISEASE. THERE IS CONFLICTING DATA IN THIS REGARD. IT SHOULD ALSO BE NOTED THAT THERE HAVE BEEN NO LONG-TERM STUDIES SHOWING THE SAFETY OF TAKING VITAMIN E IN RELATIVELY LARGE DOSES FOR LONG PERIODS OF TIME. YOUR HEALTHCARE PROFESSIONAL COULD HELP WITH THIS.

**FIG. 6P**

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### **ALCOHOL CONSUMPTION**

A NUMBER OF STUDIES HAVE RECENTLY SHOWN THAT MODERATE ALCOHOL INTAKE (ABOUT 1- 3 DRINKS PER DAY) IS ASSOCIATED WITH A LOWER RISK OF CORONARY ARTERY DISEASE THAN IN THOSE WHO ARE ABSTINENT.

THERE IS STILL MUCH TO BE LEARNED ABOUT THIS ASSOCIATION. SOME STUDIES SUGGEST THAT IT IS THE ALCOHOL ALONE THAT CAUSES THIS EFFECT. THIS WOULD IMPLY THAT BEER, WINE OR SPIRITS ALL OFFER THE SAME PROTECTION. OTHER STUDIES STRONGLY SUGGEST THAT RED WINE OFFERS THE MOST PROTECTION. IT IS BELIEVED THAT SUBSTANCES CALLED FLAVINOIDES ARE THE RESPONSIBLE AGENT. THE WEBSITE [WWW.ANTI-OXIDANT.COM](http://WWW.ANTI-OXIDANT.COM) CAN GIVE MORE INFORMATION ABOUT THIS.

ANOTHER AREA OF CONTROVERSY CONCERNS THE QUANTITY OF ALCOHOL REQUIRED FOR THIS BENEFIT. THESE STUDIES ARE STILL BEING DONE.

#### **CAUTION!!**

EXCESS ALCOHOL CONSUMPTION CAN BE HIGHLY DESTRUCTIVE TO PHYSICAL AND PSYCHOLOGICAL HEALTH. THEREFORE, THE ISSUE OF ALCOHOL CONSUMPTION AS IT RELATES TO CORONARY ARTERY DISEASE RISK SHOULD BE DISCUSSED WITH ONE'S HEALTHCARE PROFESSIONAL.

**FIG. 6Q**

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### **AGE**

IN AMERICA AND OTHER WESTERN POPULATIONS THE INCIDENCE OF CORONARY DISEASE INCREASES WITH ADVANCING AGE. MALES HAVE A HIGHER RATE OF DEVELOPING CORONARY DISEASE THAN FEMALES UNTIL ABOUT AGE 75, WHEN THE PREVALENCE OF CORONARY DISEASE IS ABOUT EQUAL BETWEEN THE SEXES. MALES LESS THAN 55 YEARS OF AGE DEVELOP CORONARY DISEASE AT A RATE OF 3-4 FOLD GREATER THAN FEMALES. HOWEVER AFTER AGE 55 THE RATE DECREASES FOR MEN AND INCREASES FOR WOMEN.

**FIG. 6R**

### **FAMILY HISTORY**

POSITIVE FAMILY HISTORY, ACCORDING TO THE NATIONAL CHOLESTEROL EDUCATION PROGRAM IS DEFINED AS HAVING A FIRST DEGREE MALE RELATIVE DEVELOP A DEFINITE HEART ATTACK OR DIE SUDDENLY BEFORE THE AGE OF 55. THIS WOULD INCLUDE INDIVIDUALS SUCH AS A FATHER OR BROTHER. POSITIVE FAMILY HISTORY IS ALSO PRESENT IF A FIRST DEGREE FEMALE RELATIVE DEVELOPS A DEFINITE HEART ATTACK OR DIES SUDDENLY BEFORE THE AGE OF 65.

**FIG. 6S**

### **KNOWN CORONARY ARTERY DISEASE**

INDIVIDUALS WHO HAVE KNOWN CORONARY ARTERY DISEASE SUCH AS ANGINA, HEART ATTACK, PREVIOUS CORONARY BYPASS SURGERY OR ANGIOPLASTY, ALL HAVE A HIGHER RISK OF DEVELOPING FUTURE CORONARY ARTERY EVENTS.

### **KNOWN VASCULAR DISEASE**

INDIVIDUALS WHO HAVE BLOCKAGES IN ARTERIES GOING TO OTHER PARTS OF THE BODY SUCH AS THE BRAIN, LEGS OR ABDOMINAL ORGANS, HAVE AN INCREASED RISK OF DEVELOPING CORONARY ARTERY DISEASE.

**FIG. 6T**

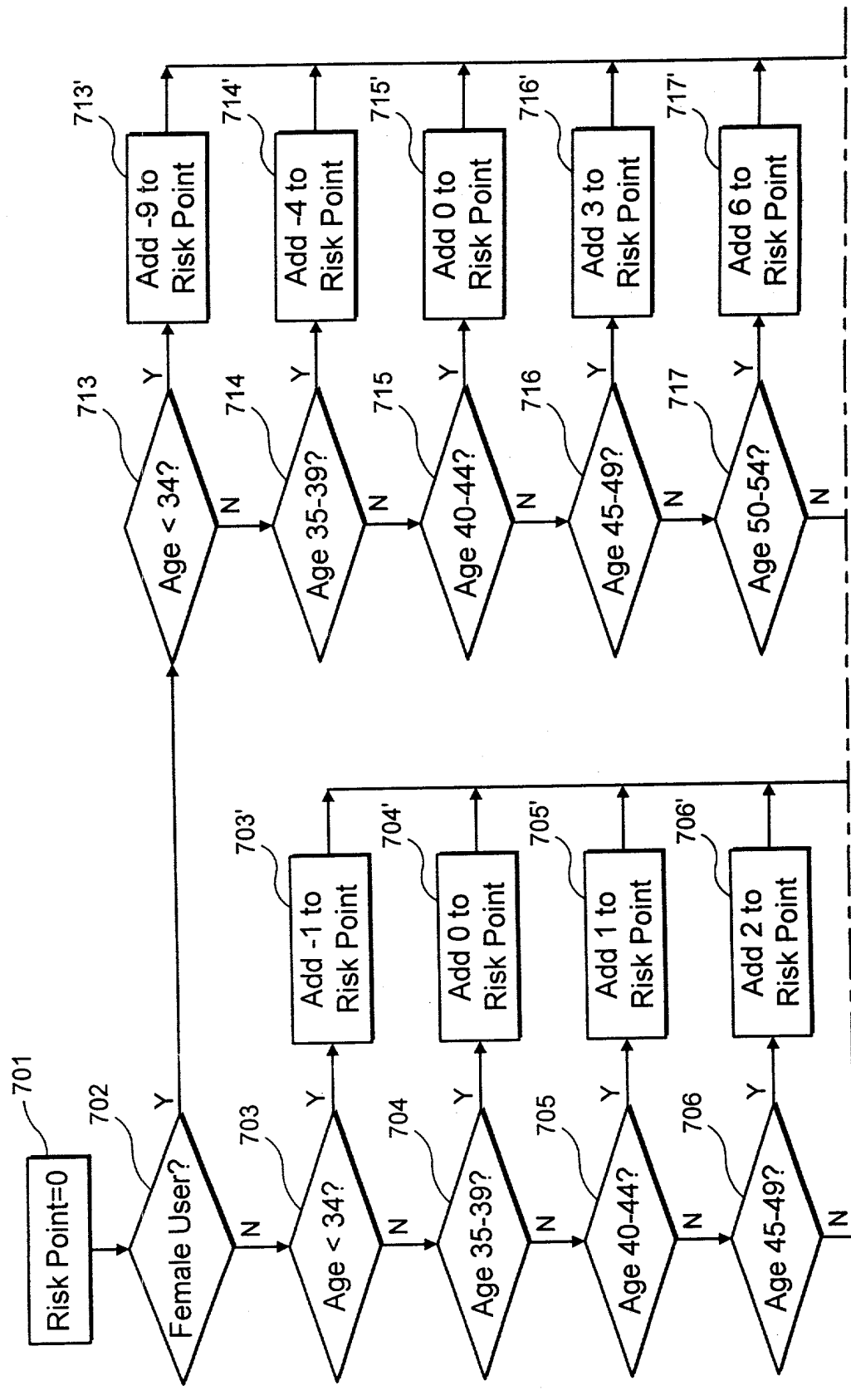


FIG. 7A

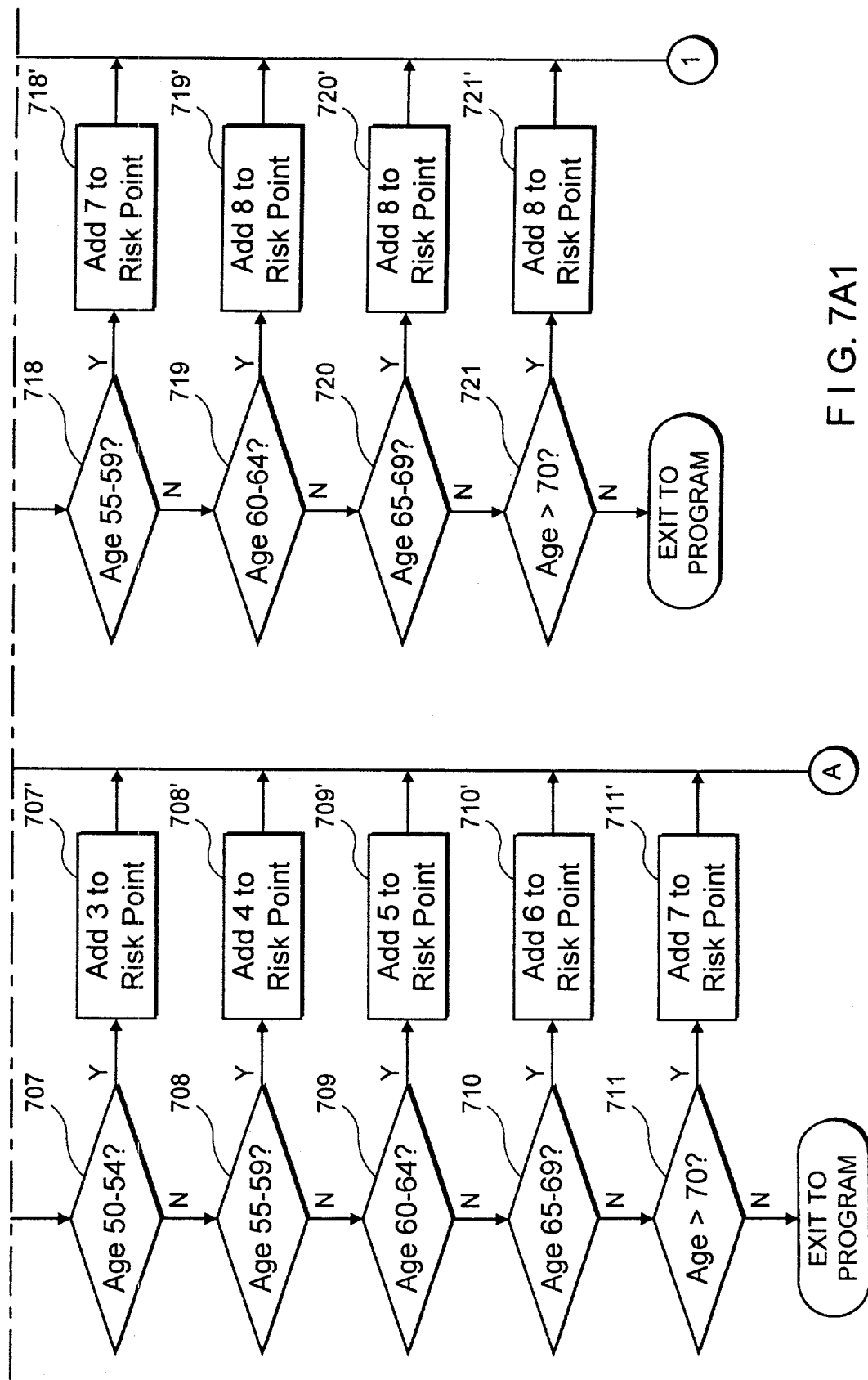


FIG. 7A1

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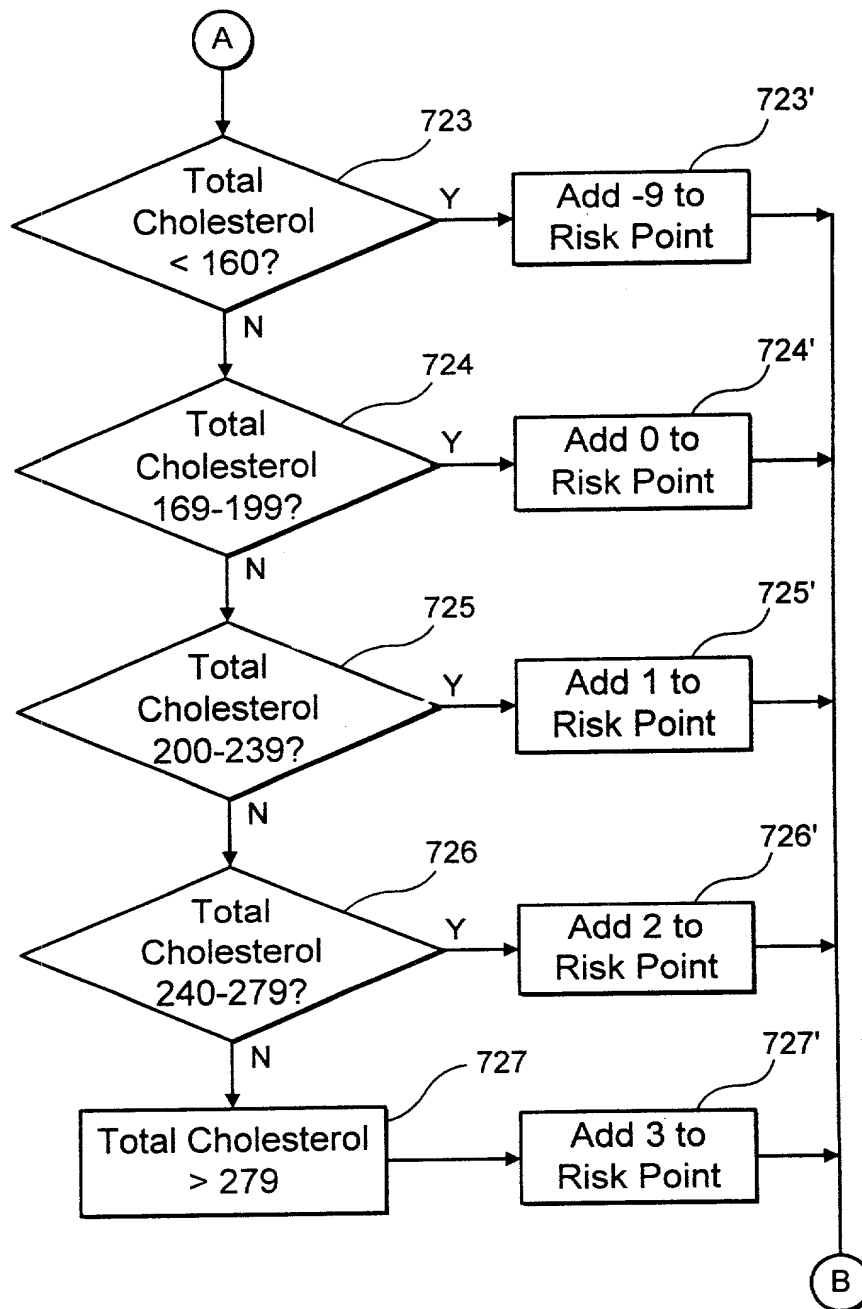


FIG. 7B

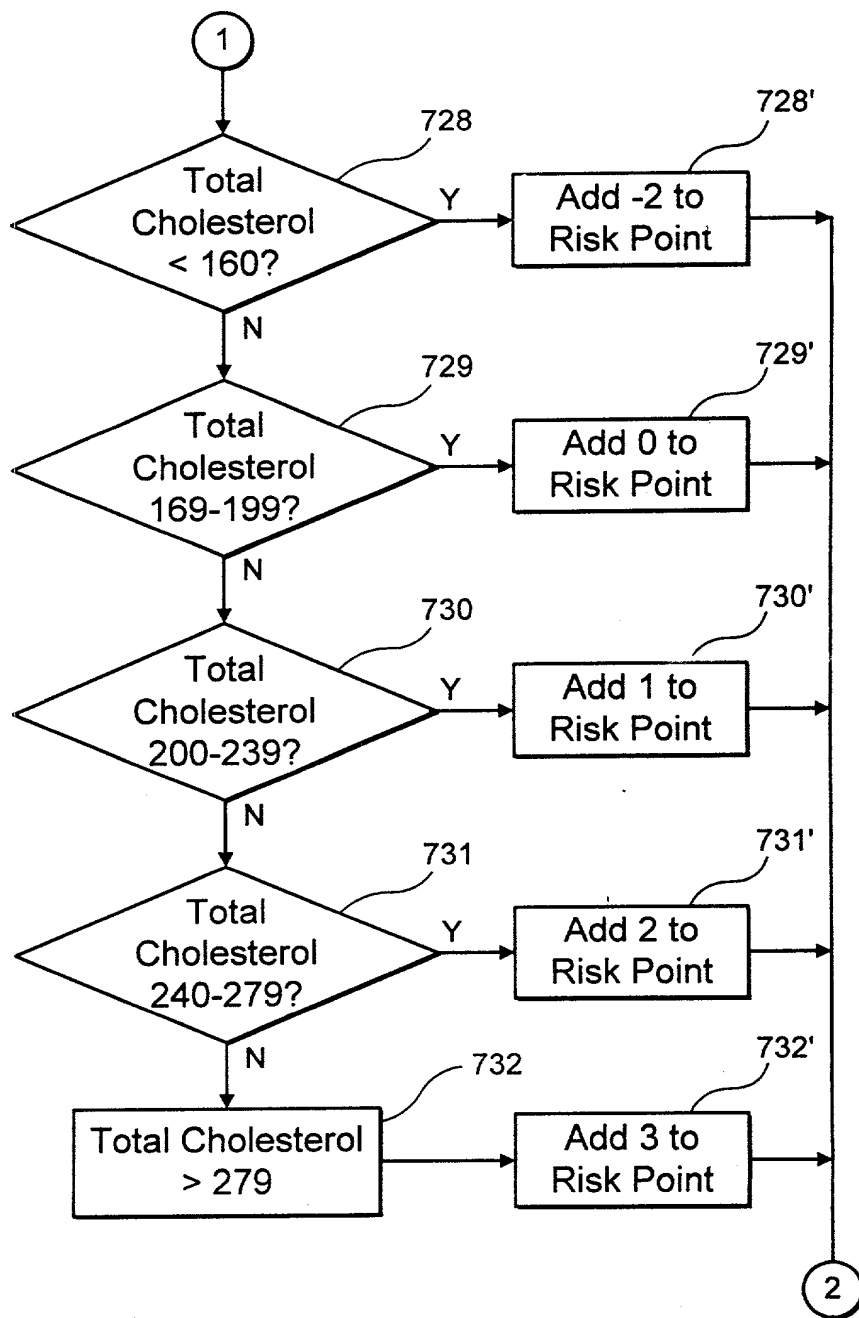


FIG. 7B1

202205667660

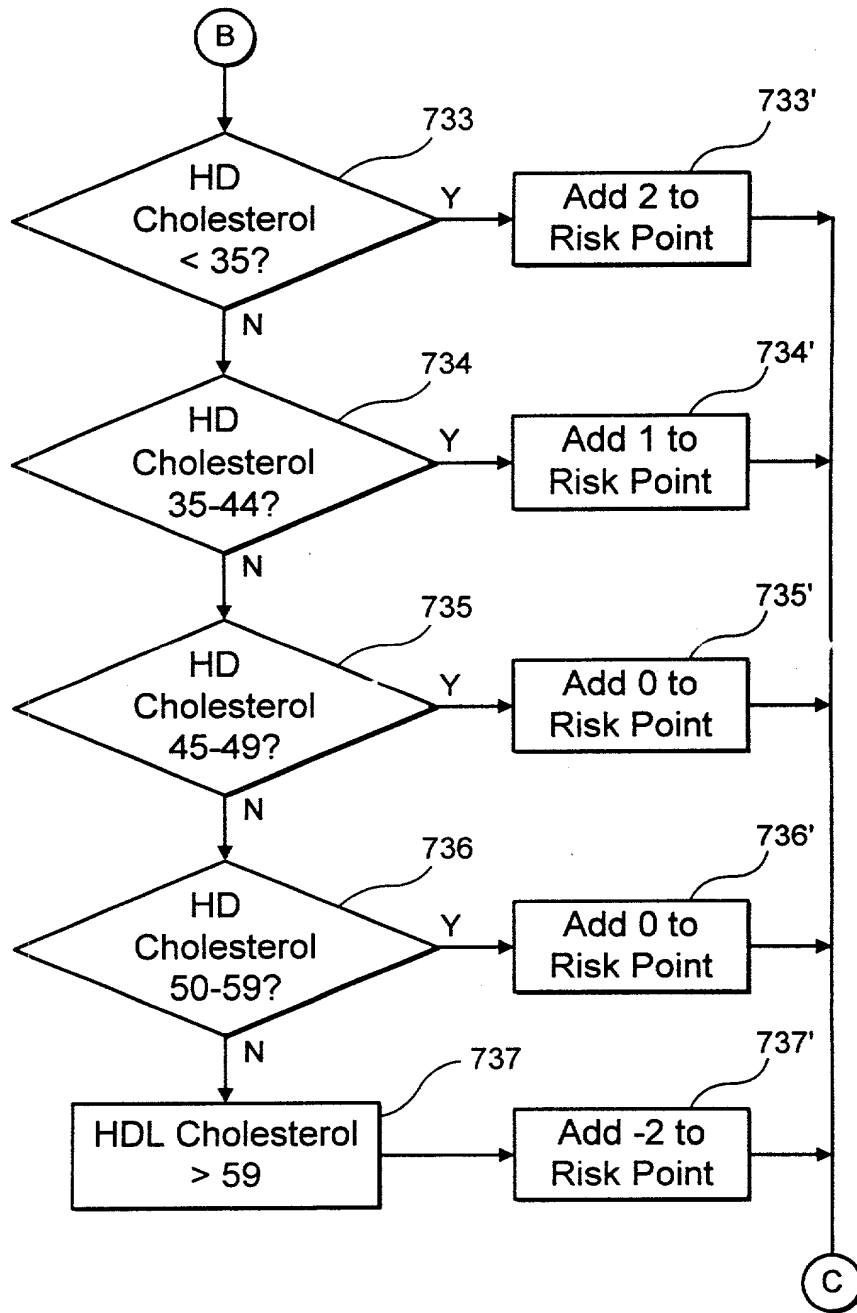


FIG. 7C

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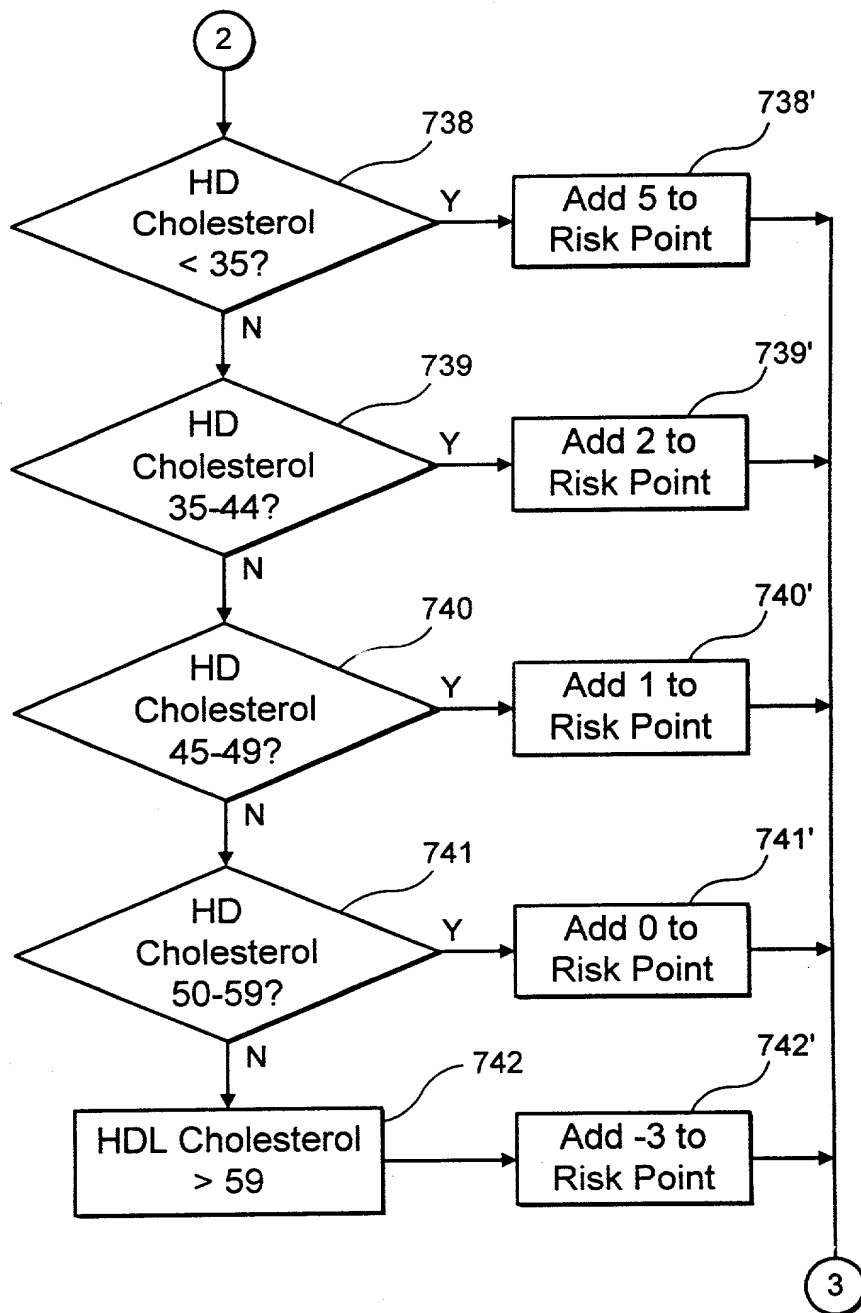


FIG. 7C1

2009220" 56657660

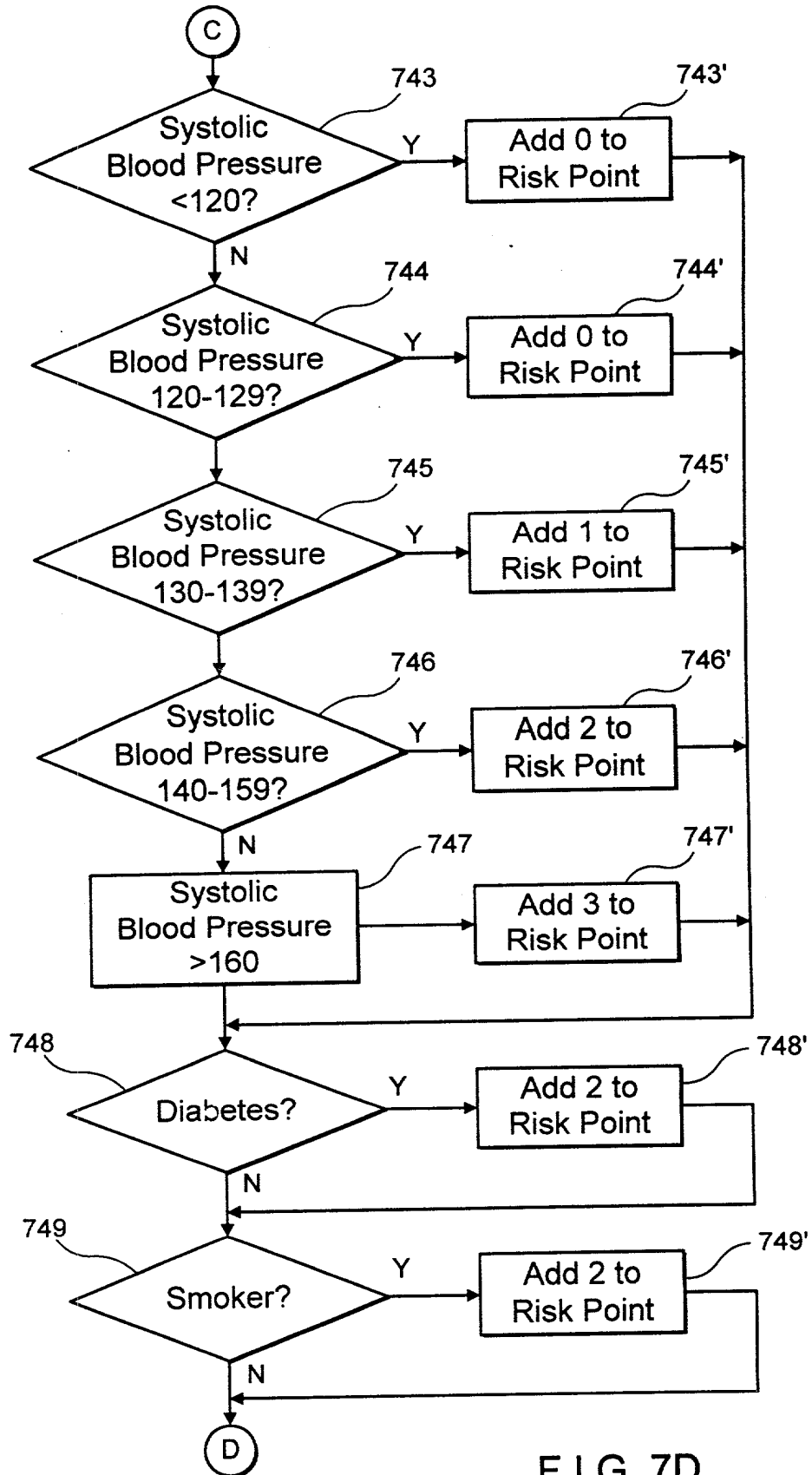


FIG. 7D



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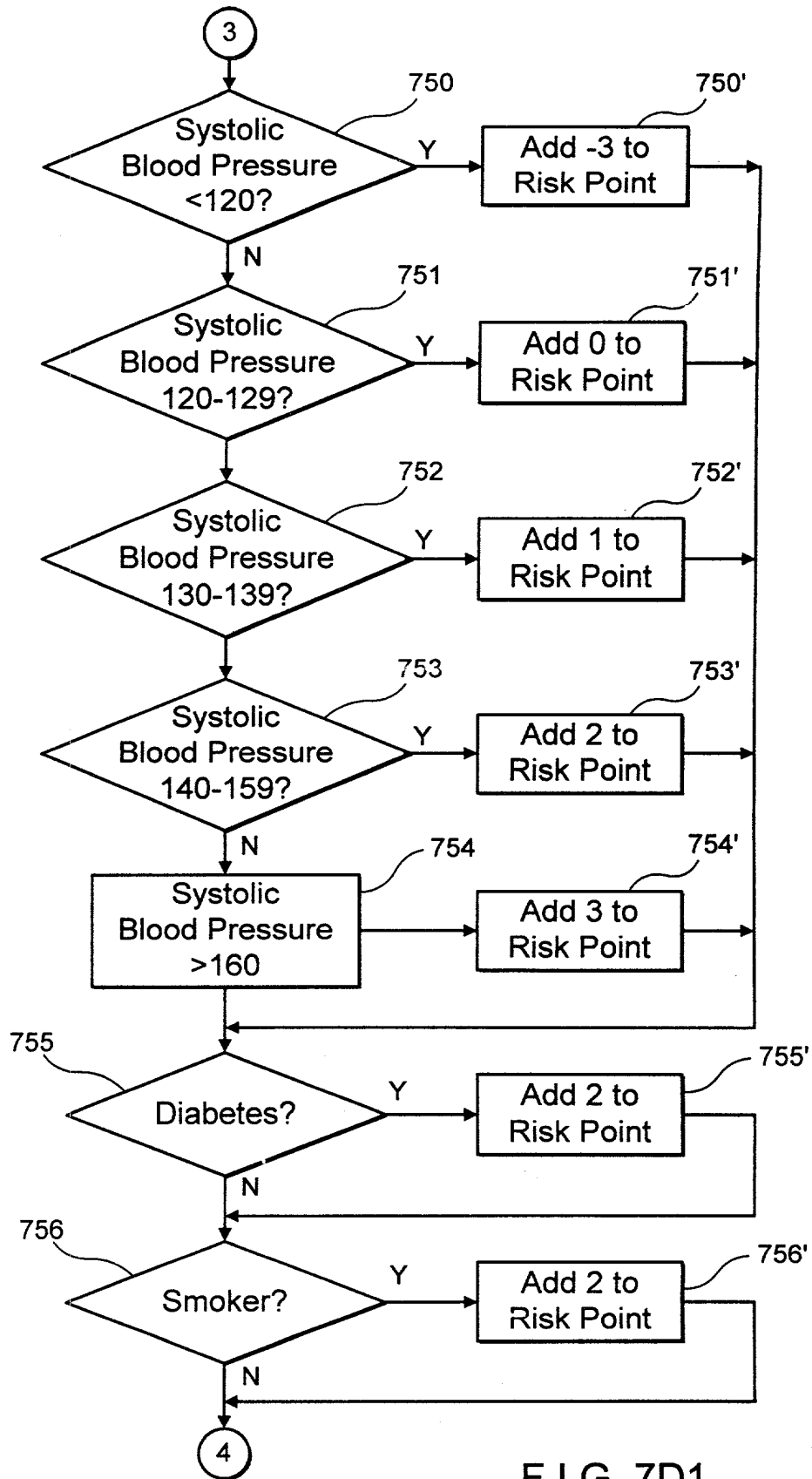


FIG. 7D1

209220 556E 660

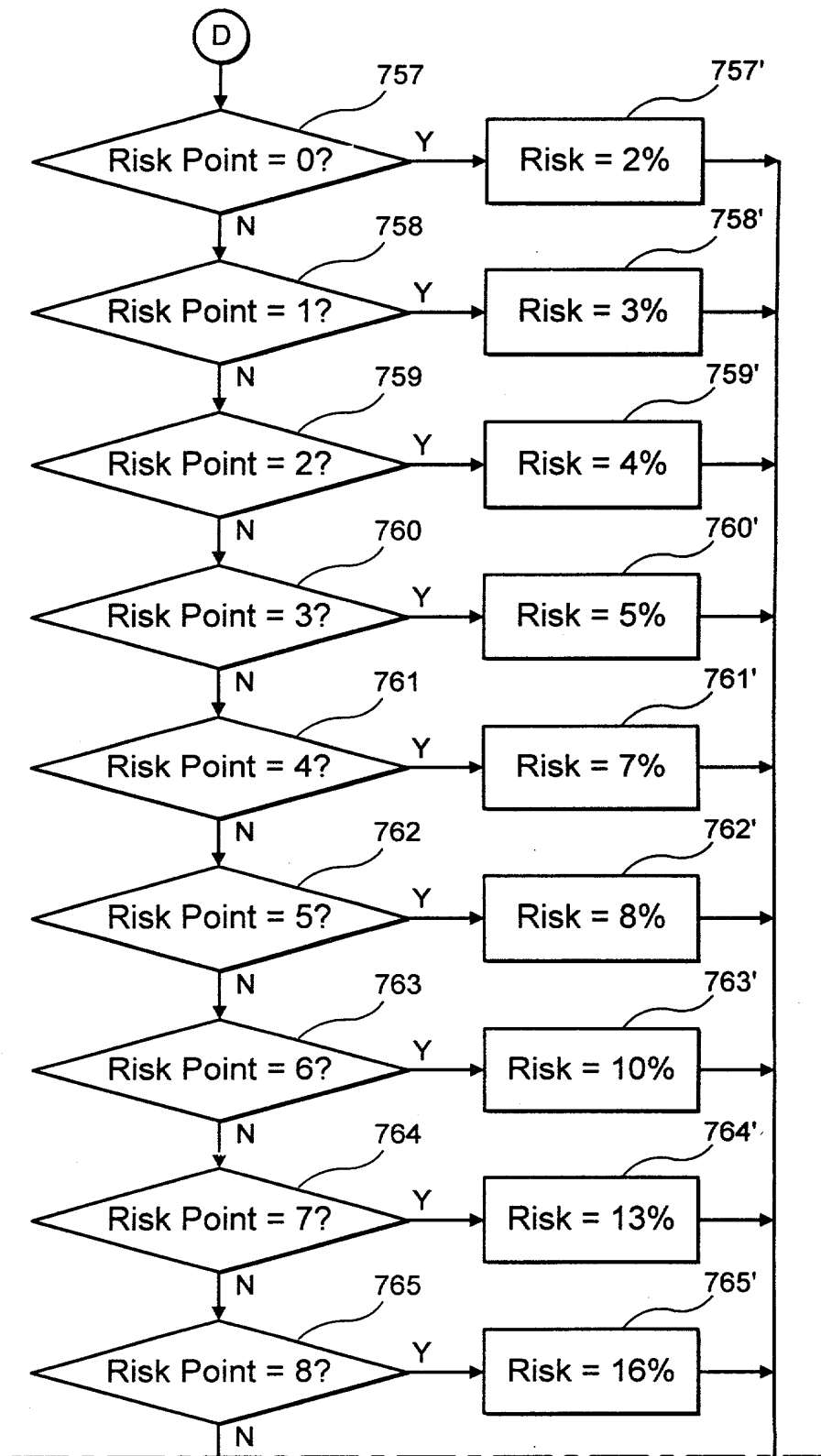


FIG. 7E(a)

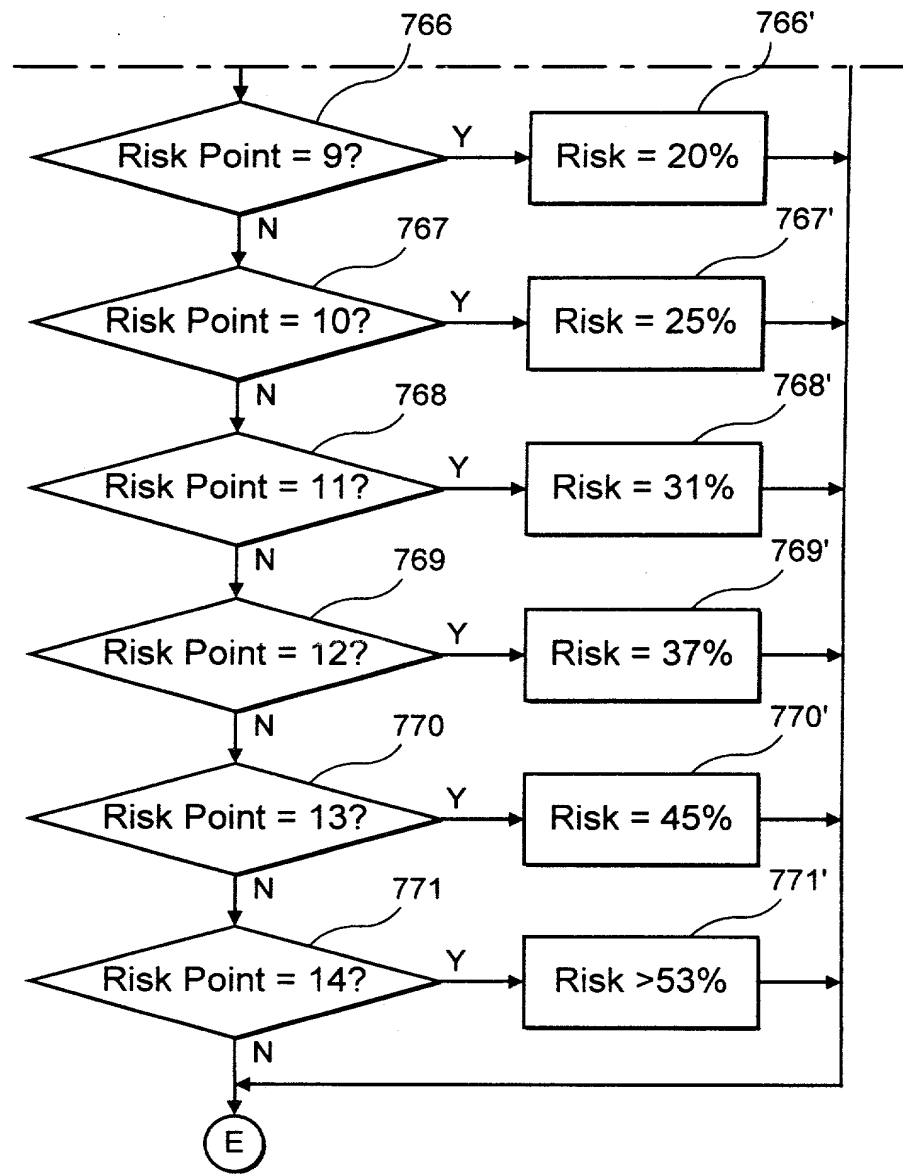


FIG. 7E(b)

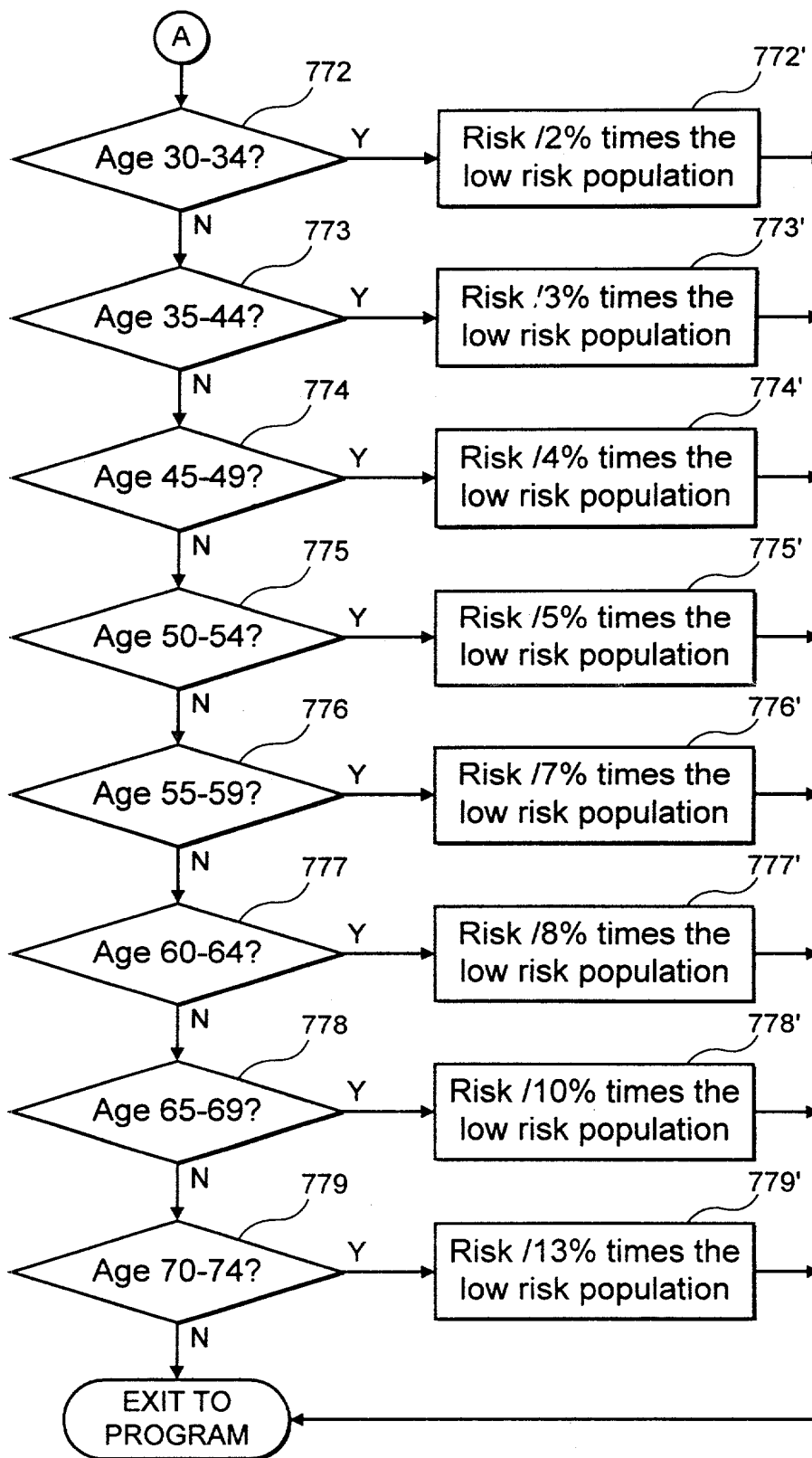


FIG. 7E1

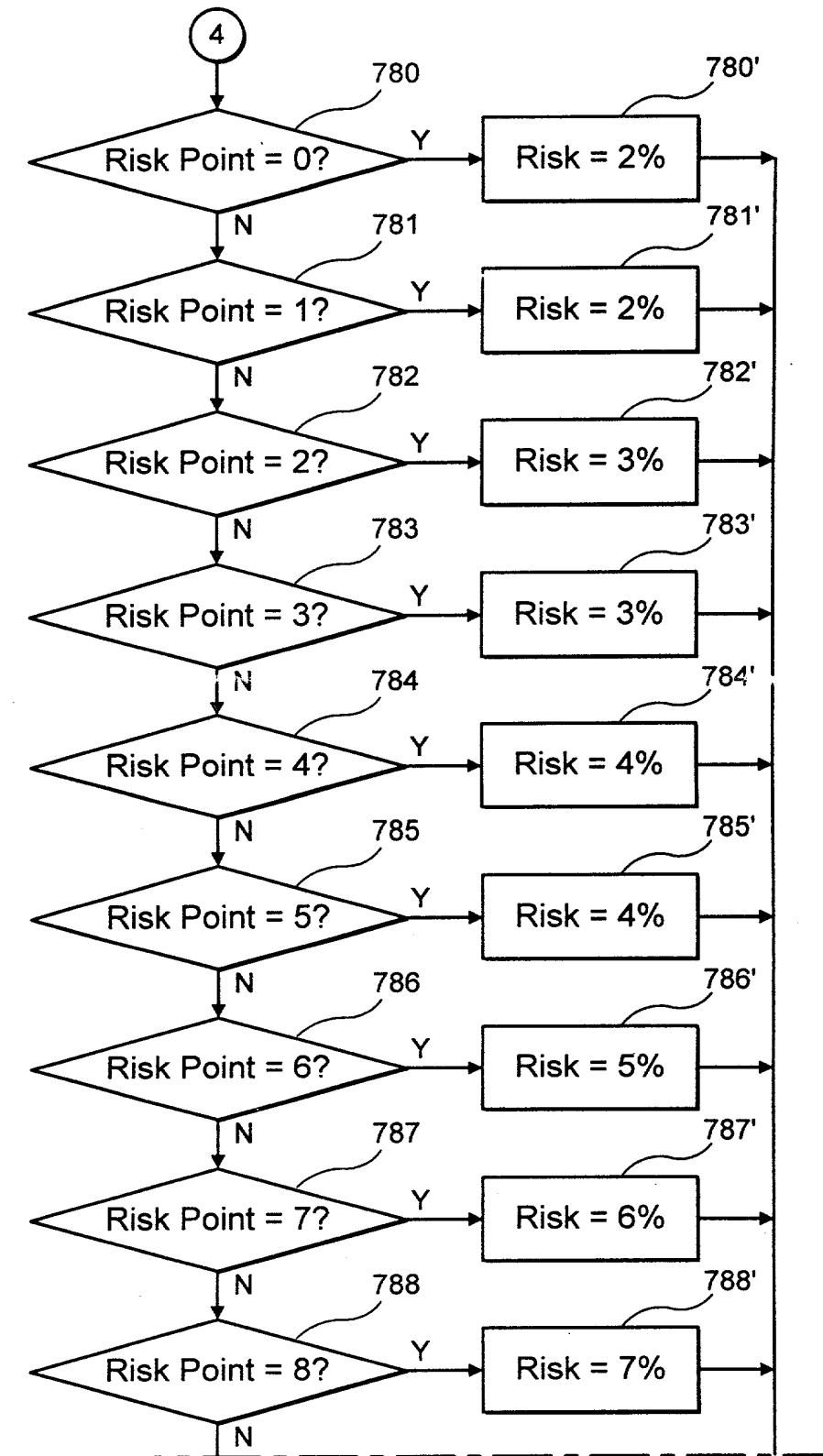


FIG. 7F

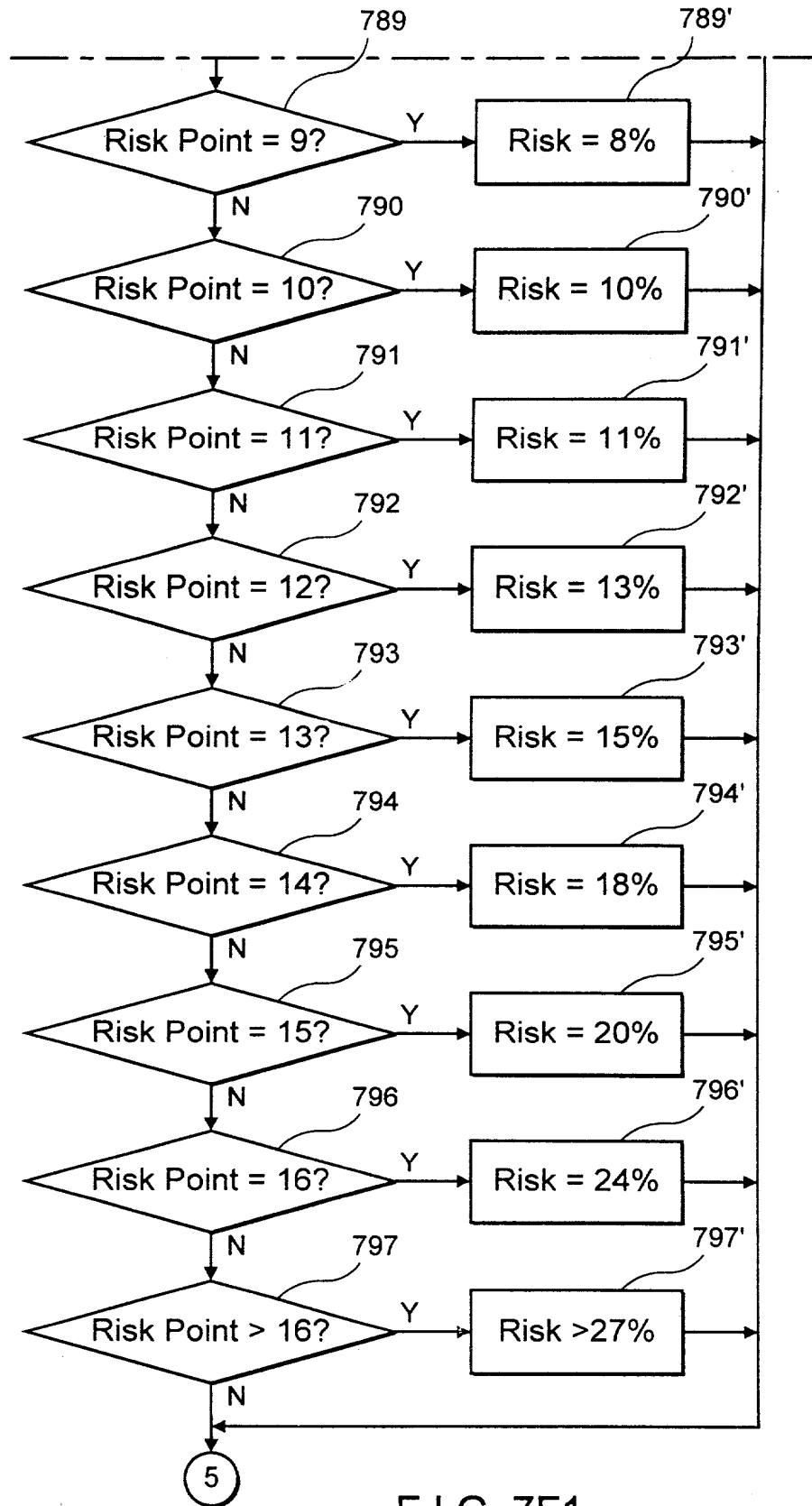


FIG. 7F1

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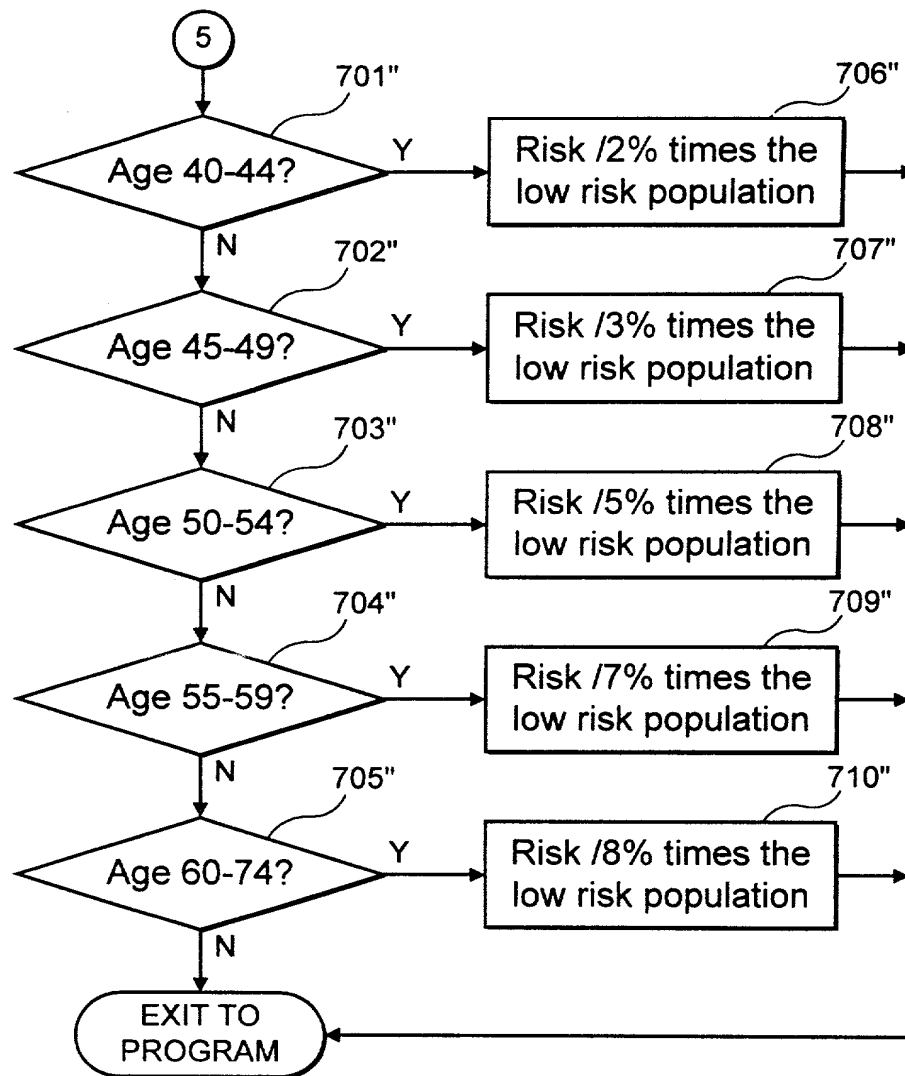


FIG. 7F2

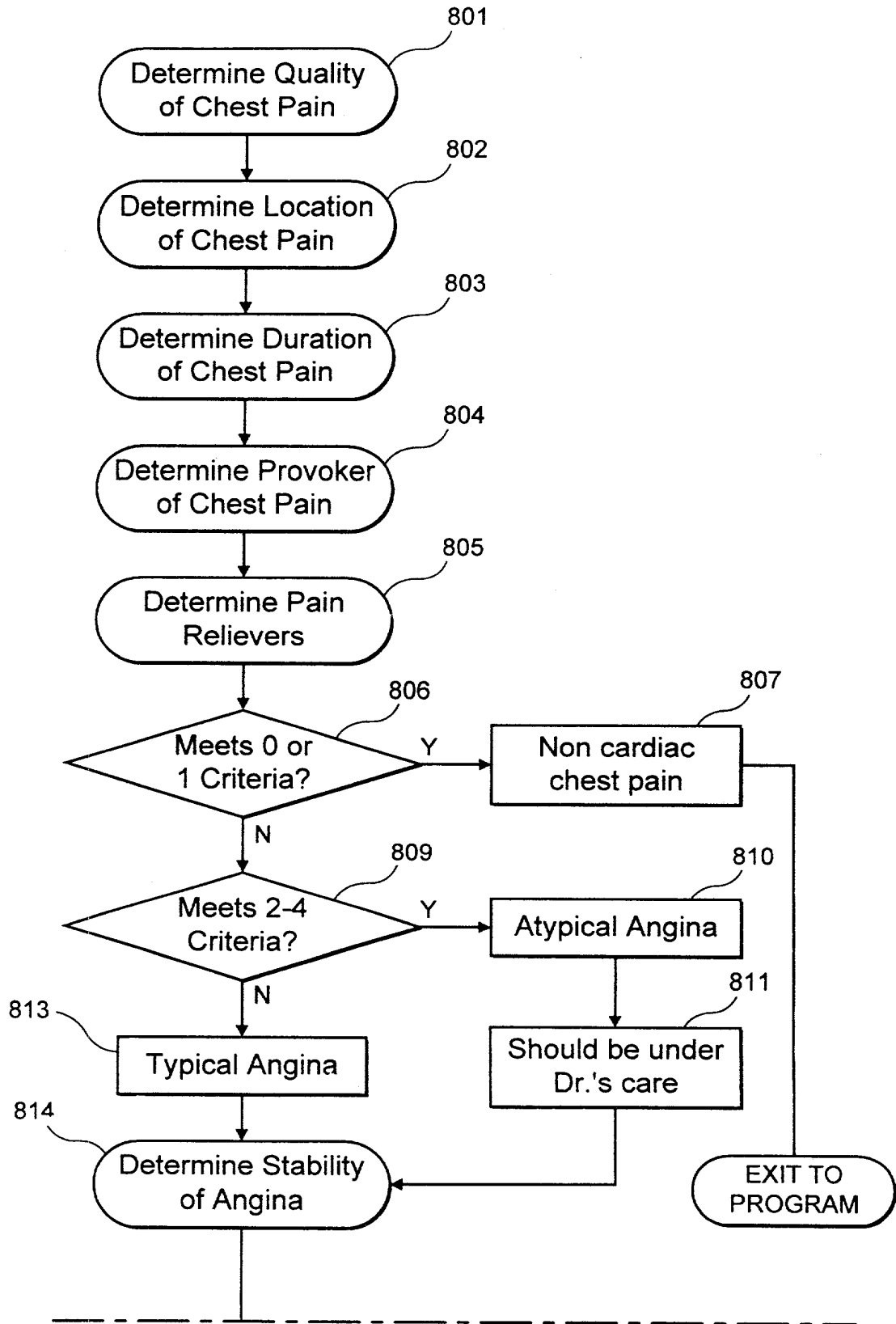


FIG. 8(1)



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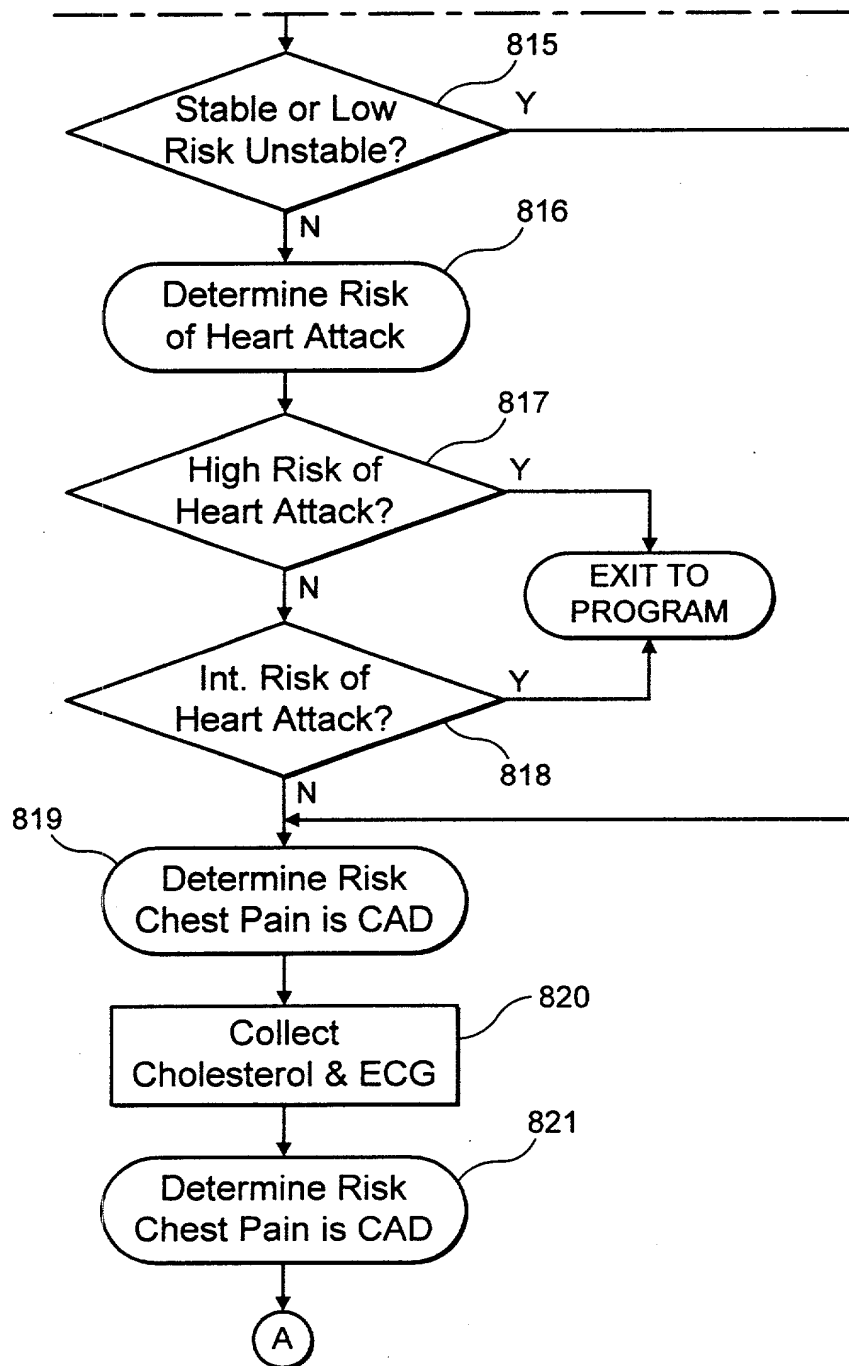


FIG. 8(2)

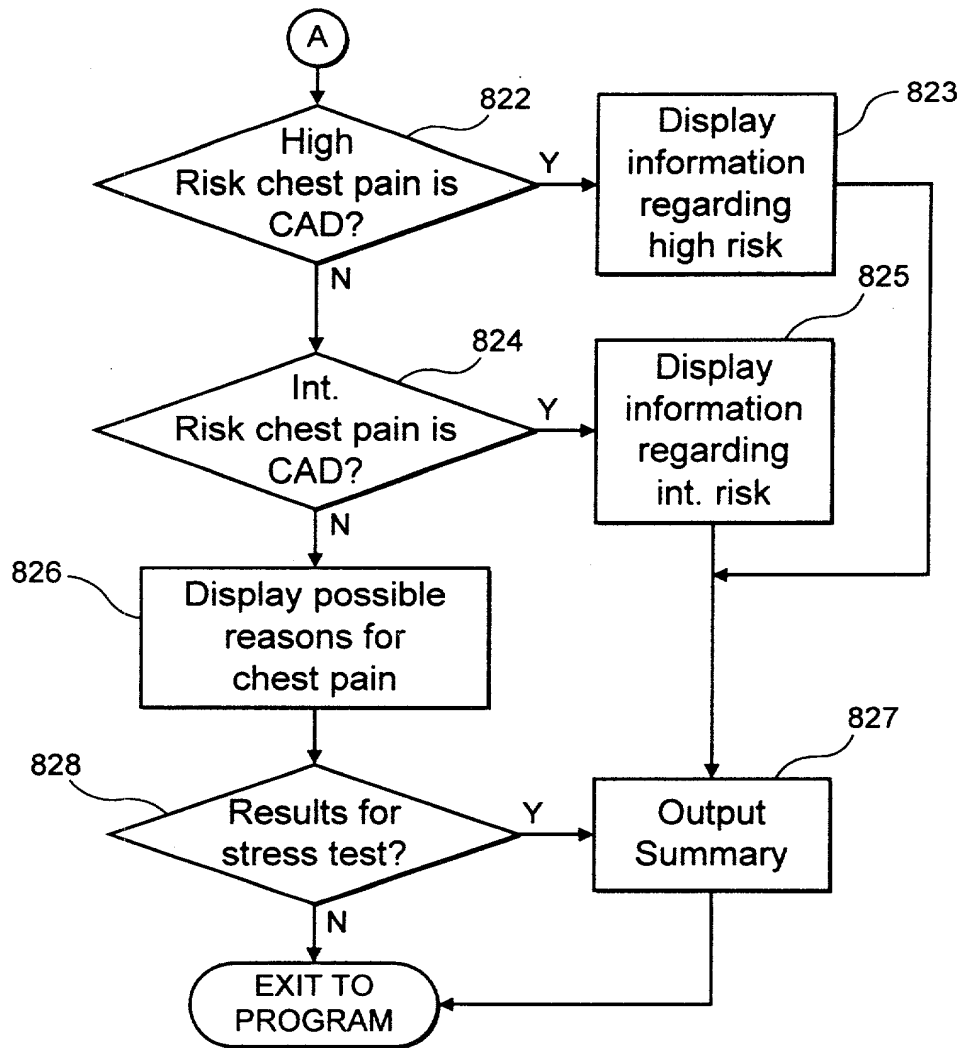


FIG. 8(3)

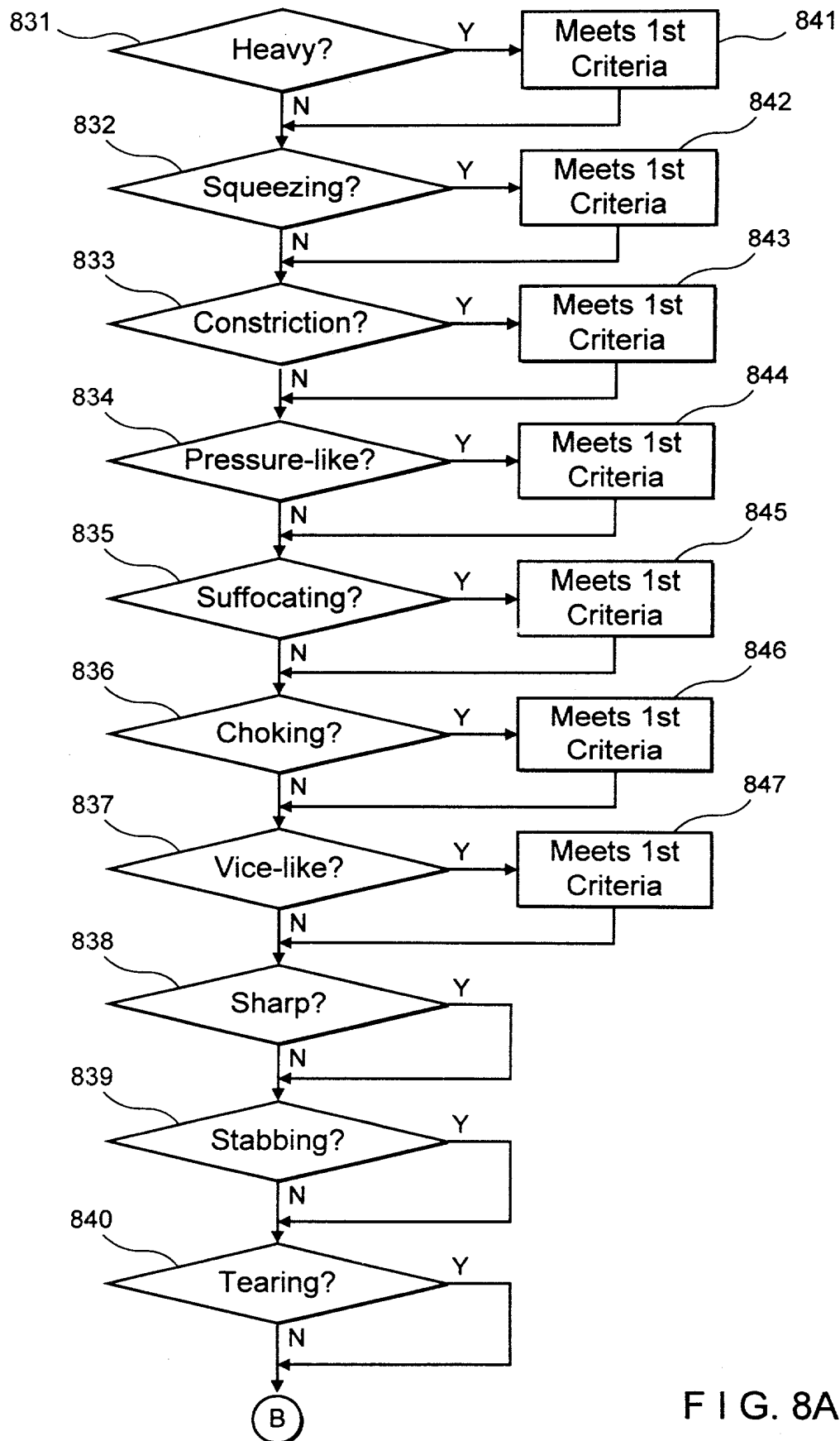


FIG. 8A



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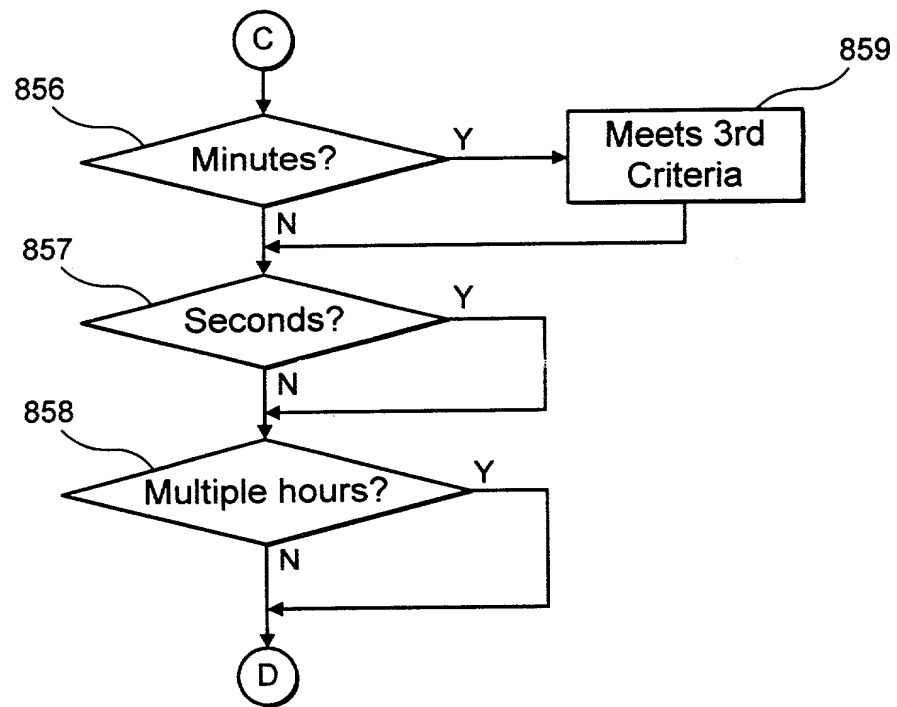


FIG. 8C

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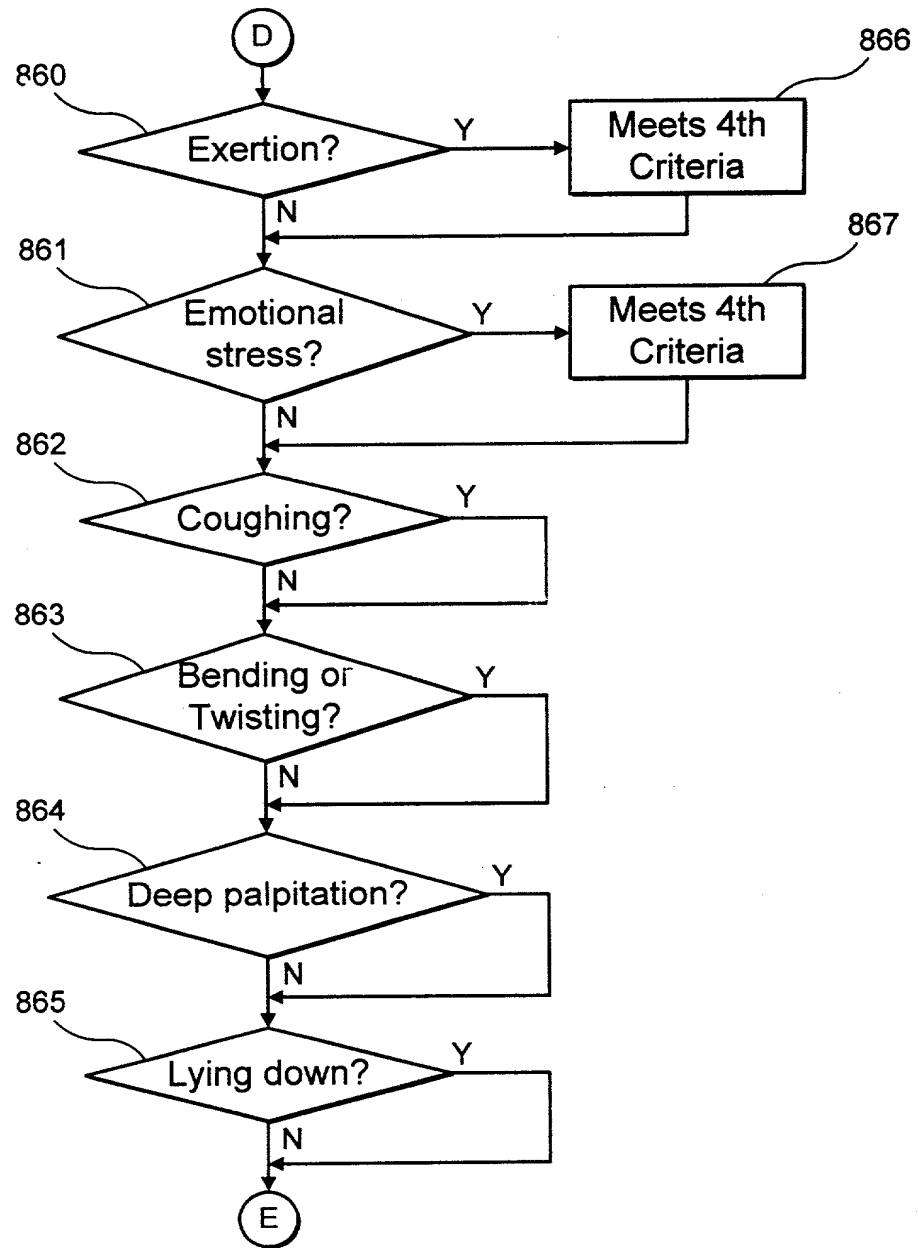


FIG. 8D

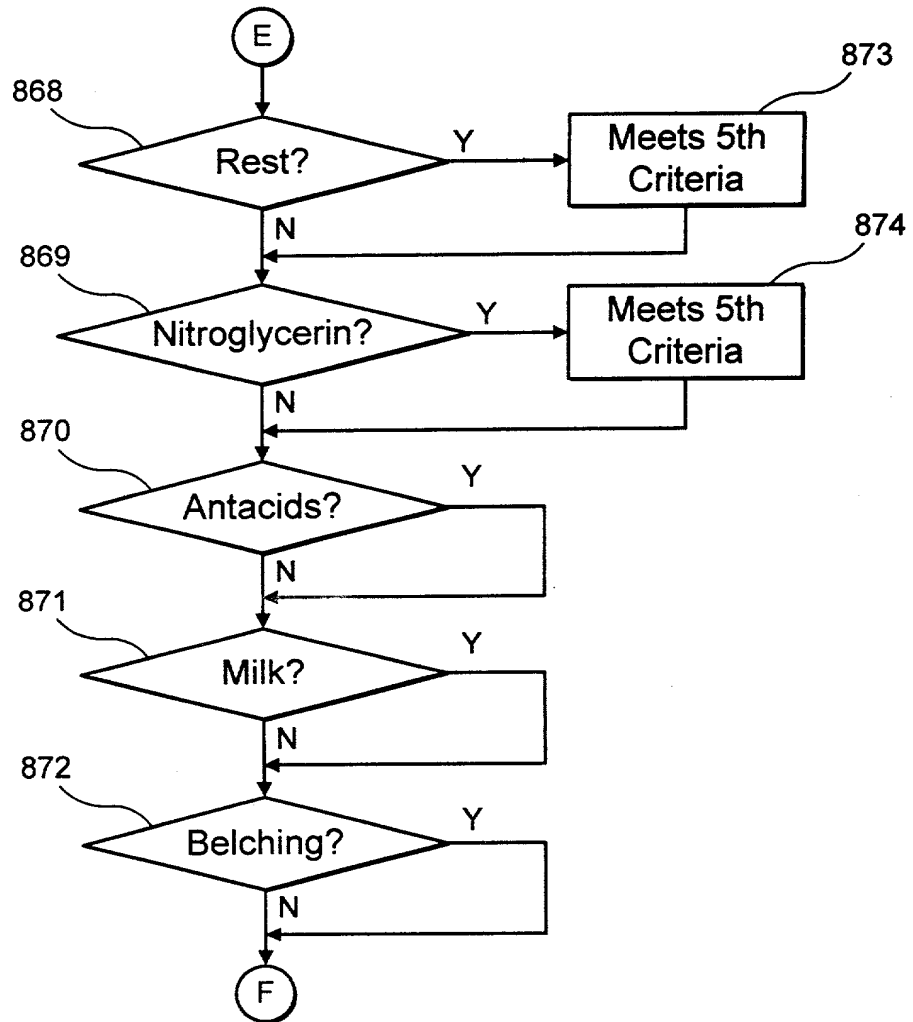


FIG. 8E

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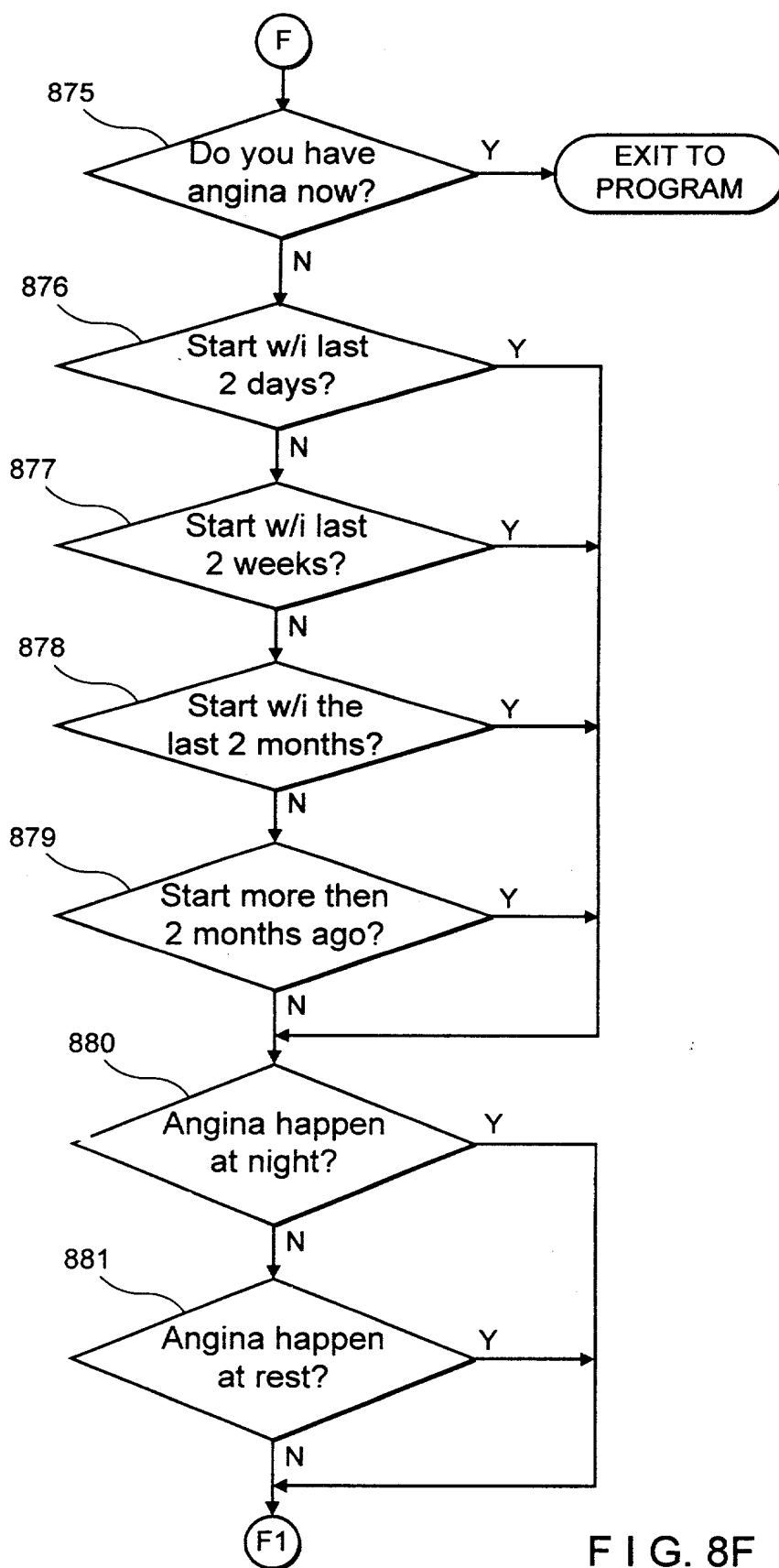


FIG. 8F



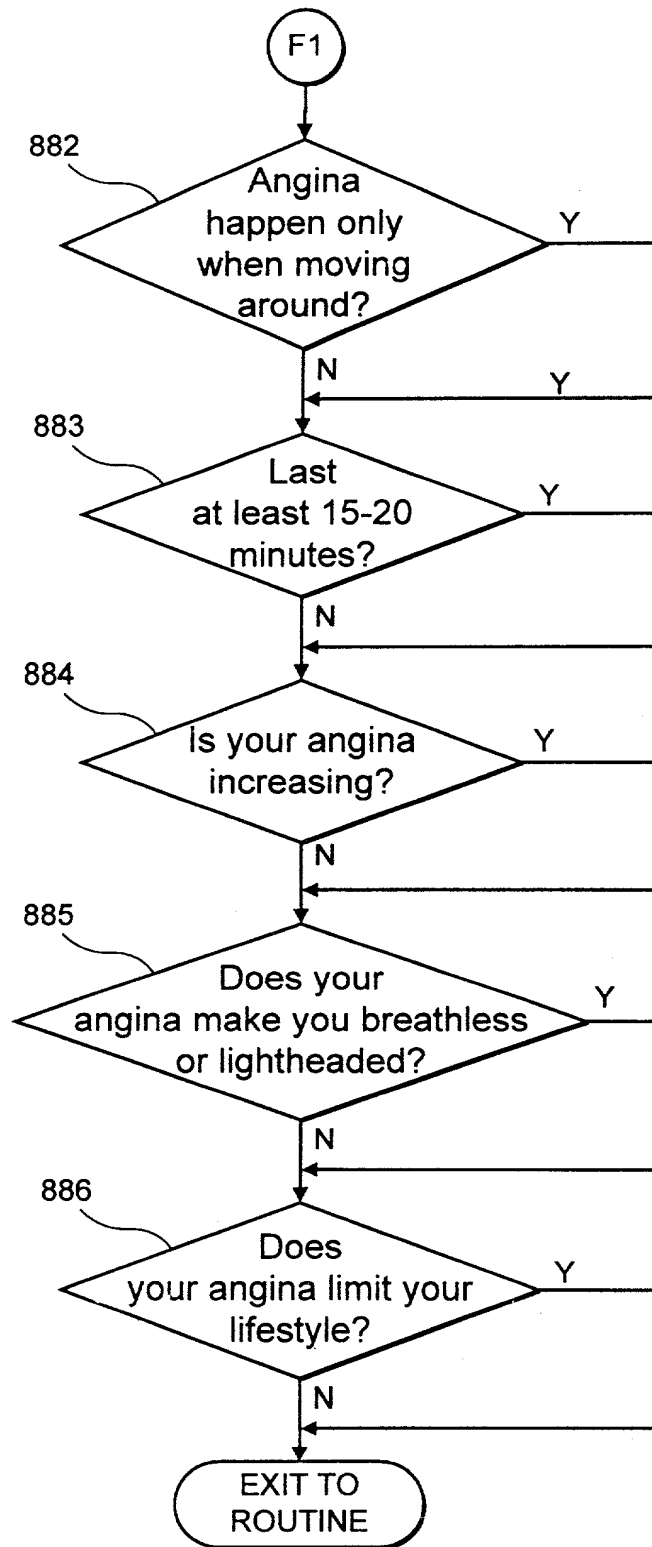
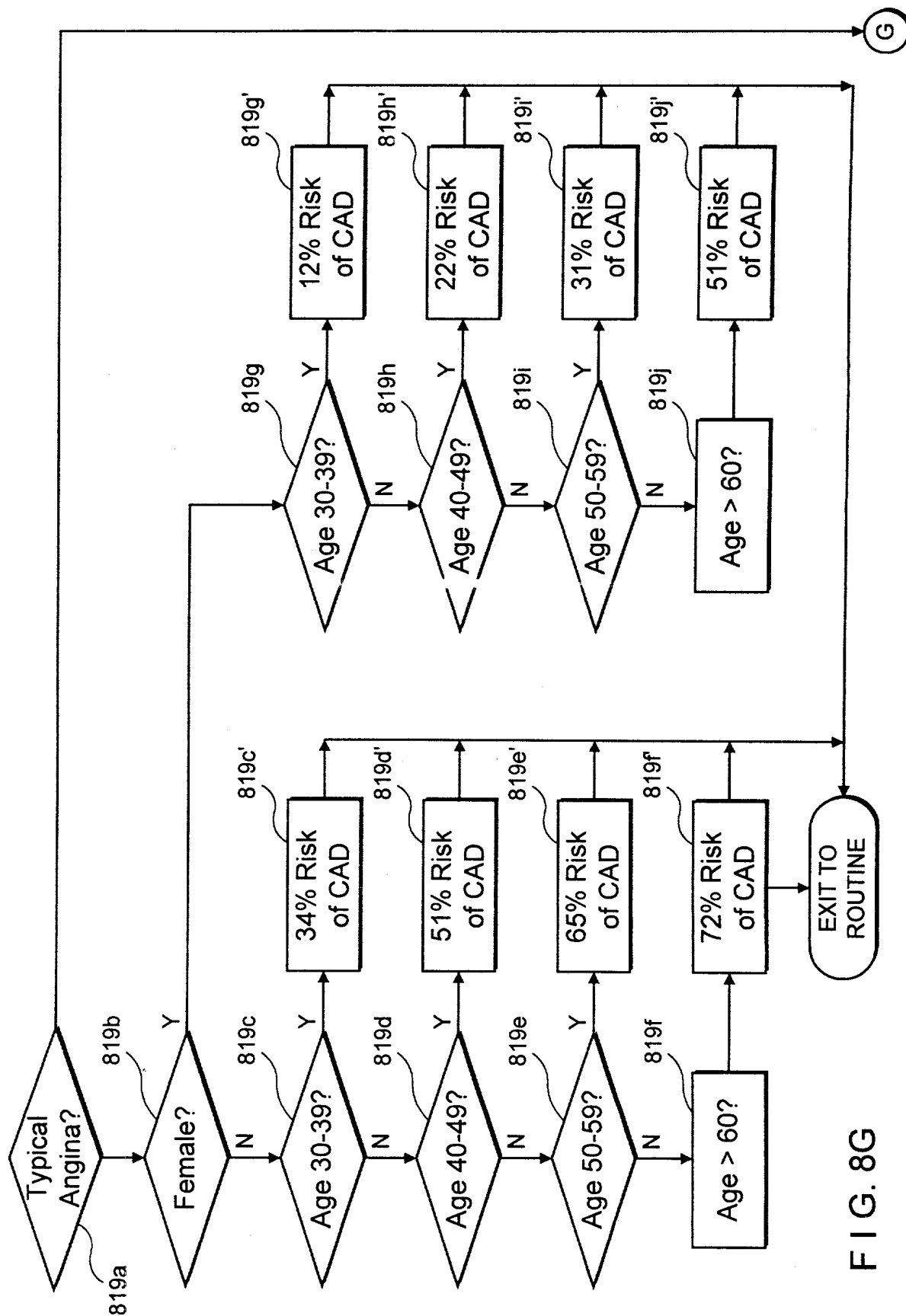


FIG. 8F1



G

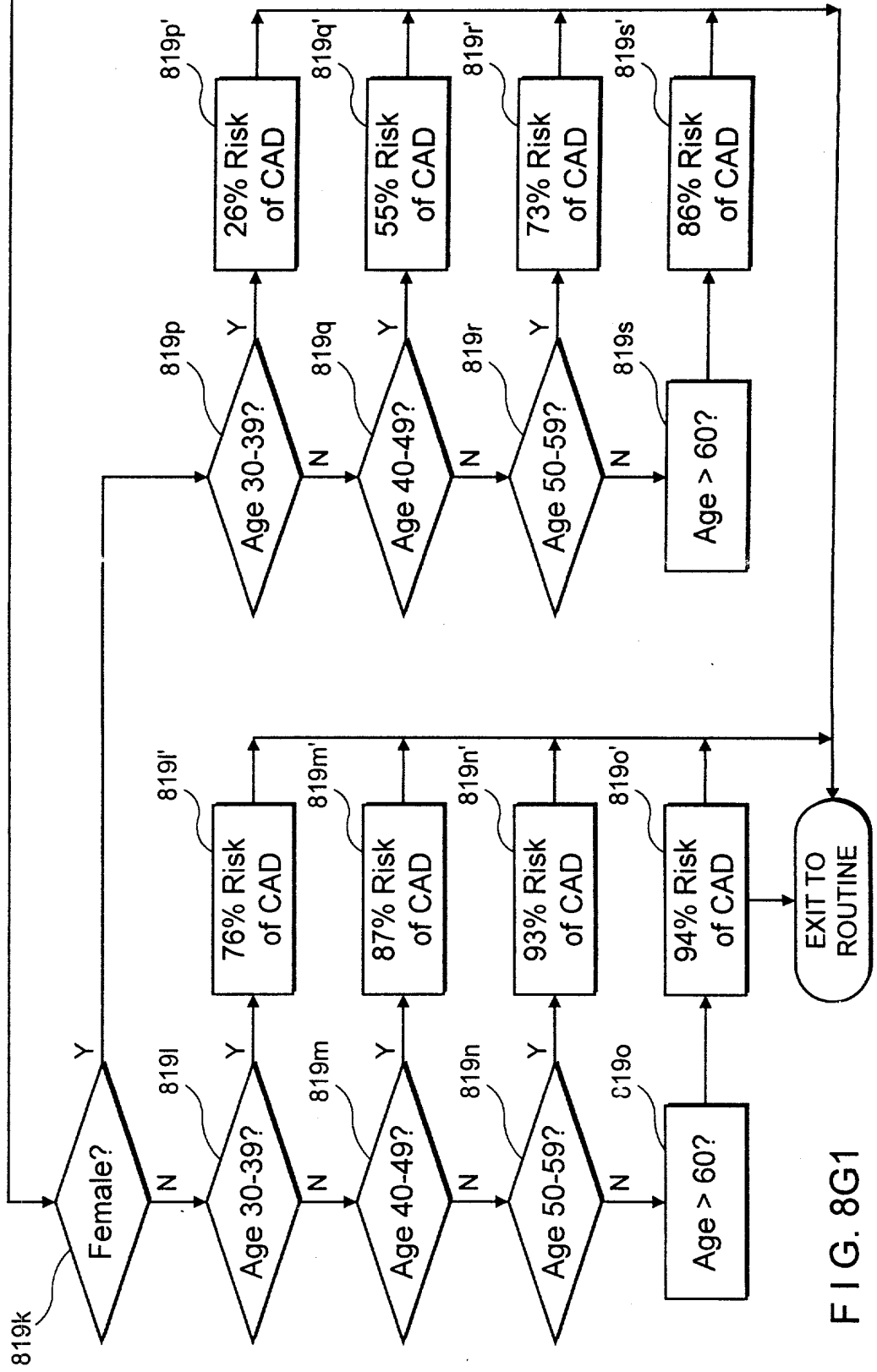
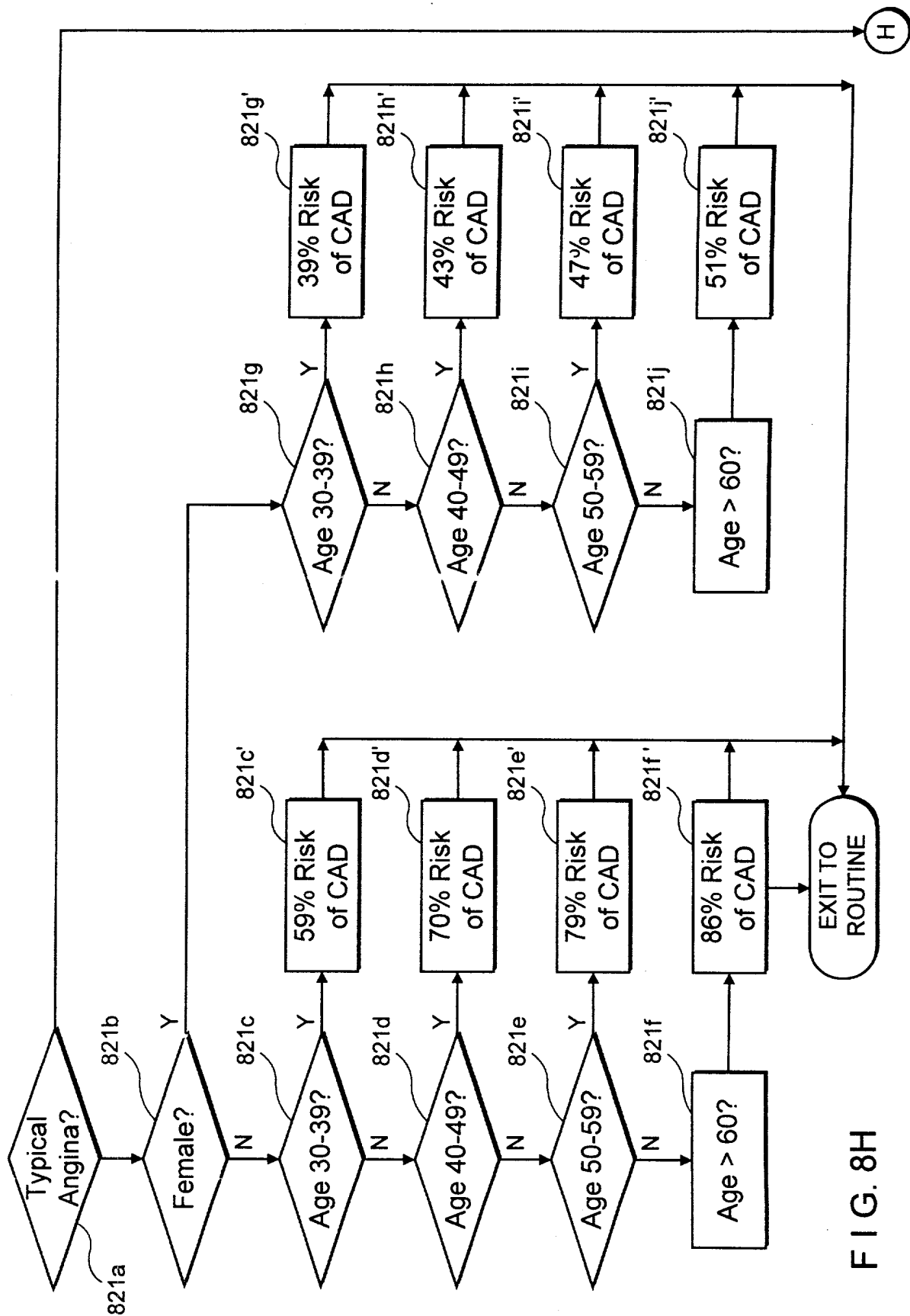


FIG. 8G1



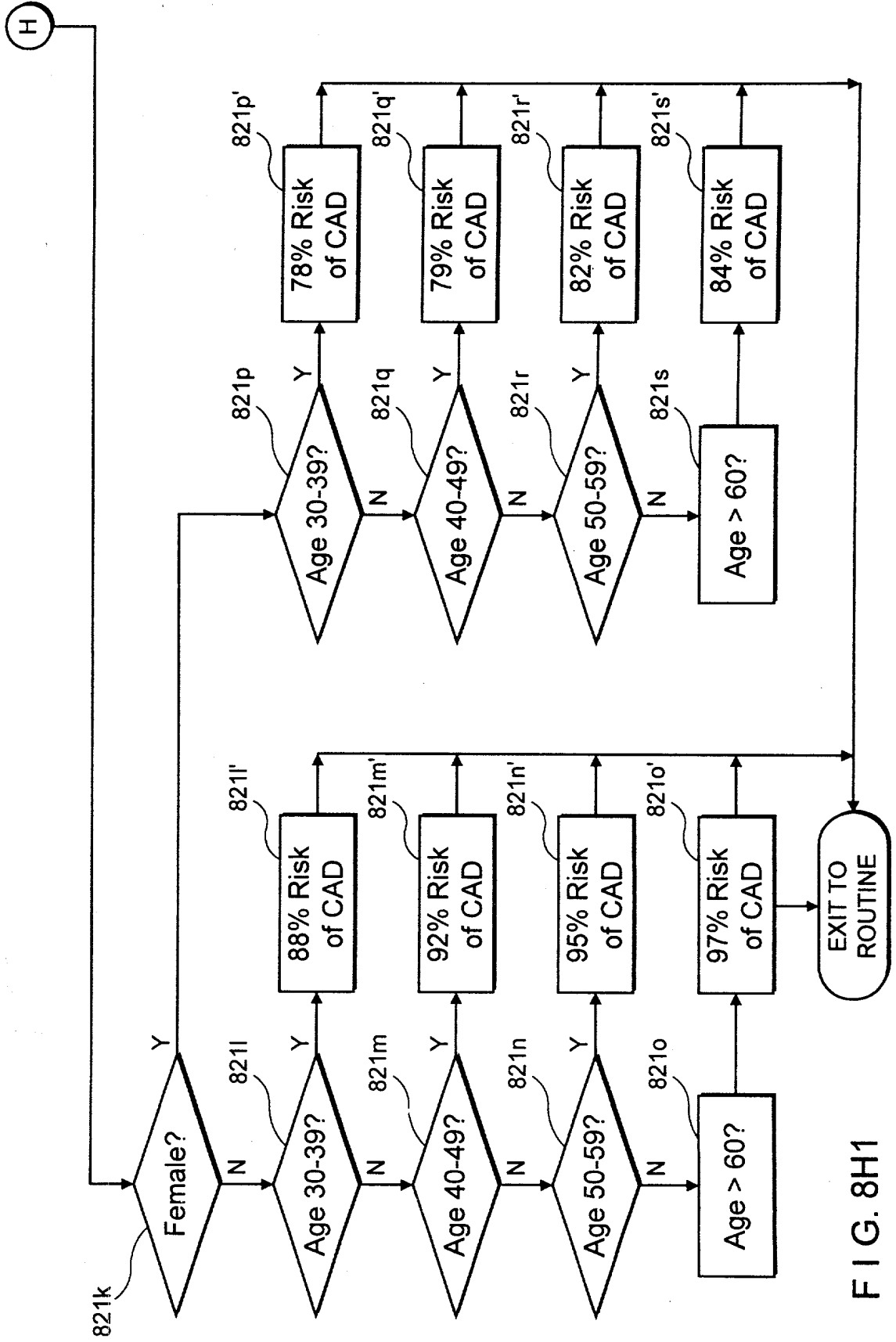


FIG. 8H1

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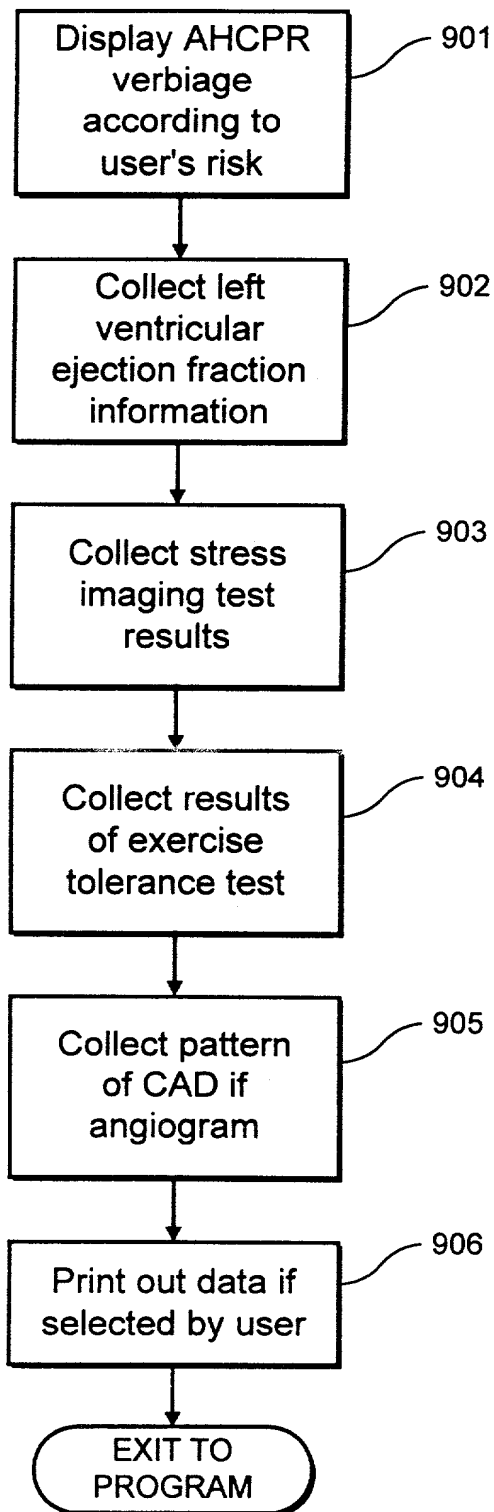


FIG. 9

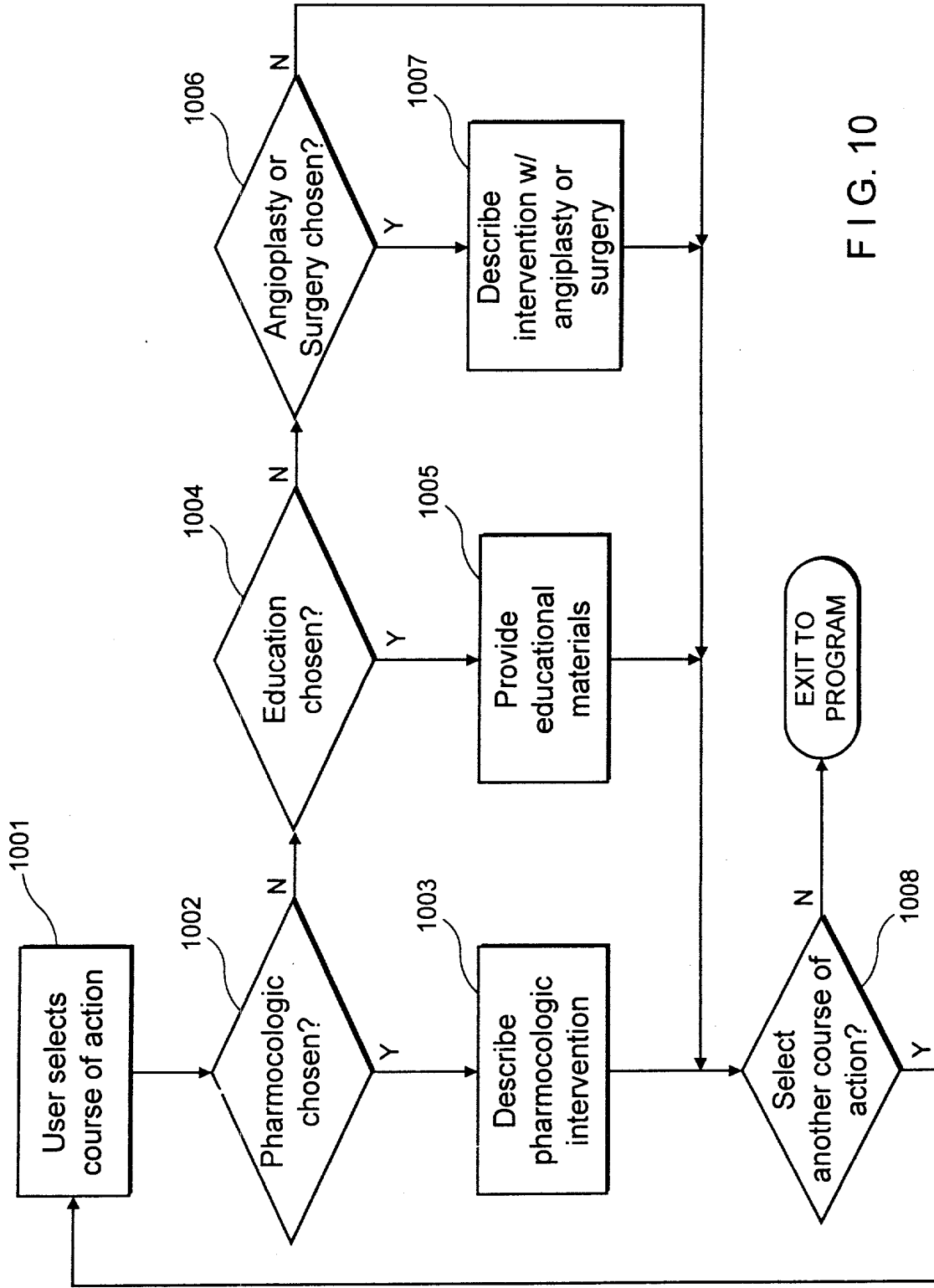


FIG. 10

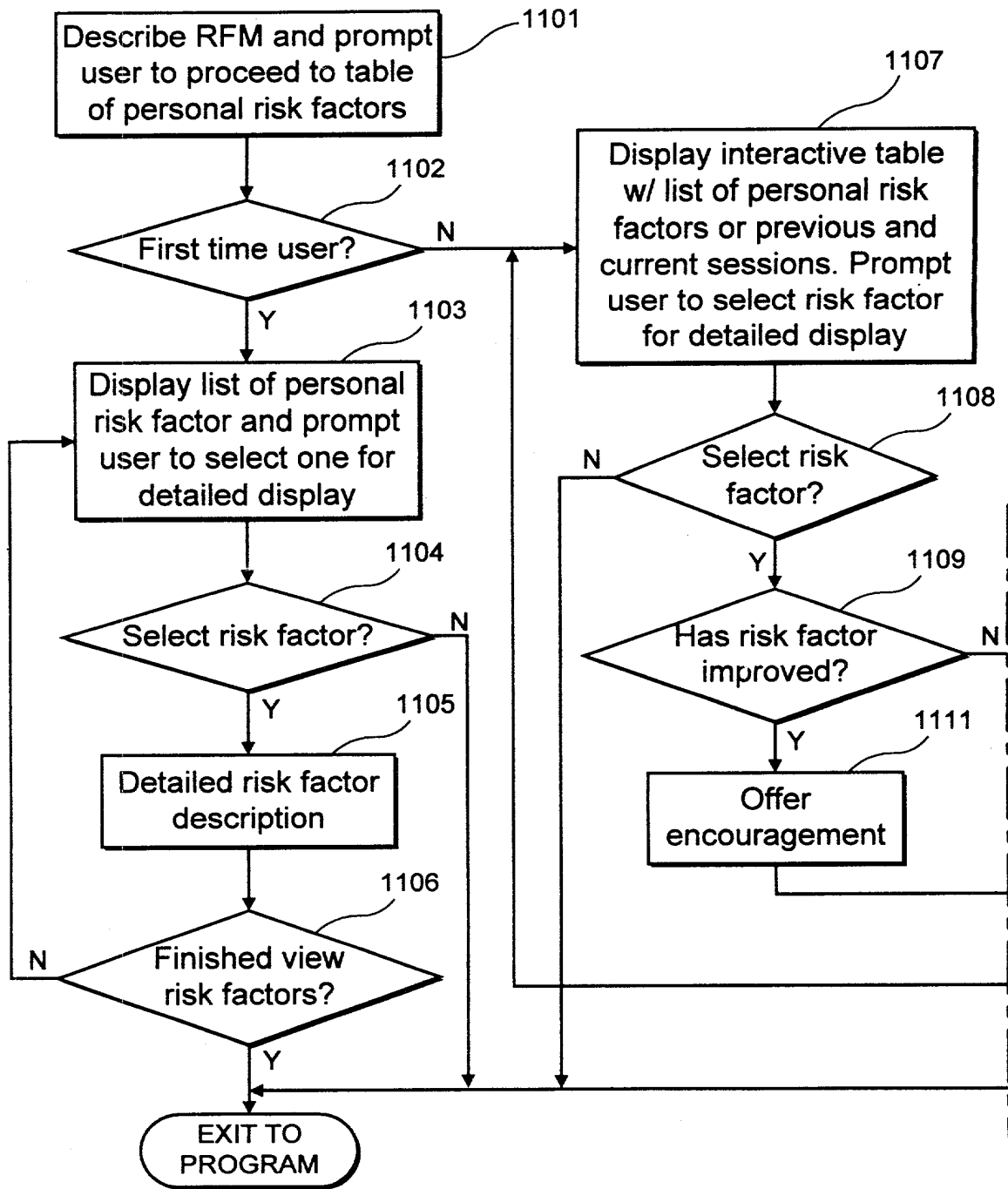


FIG. 11



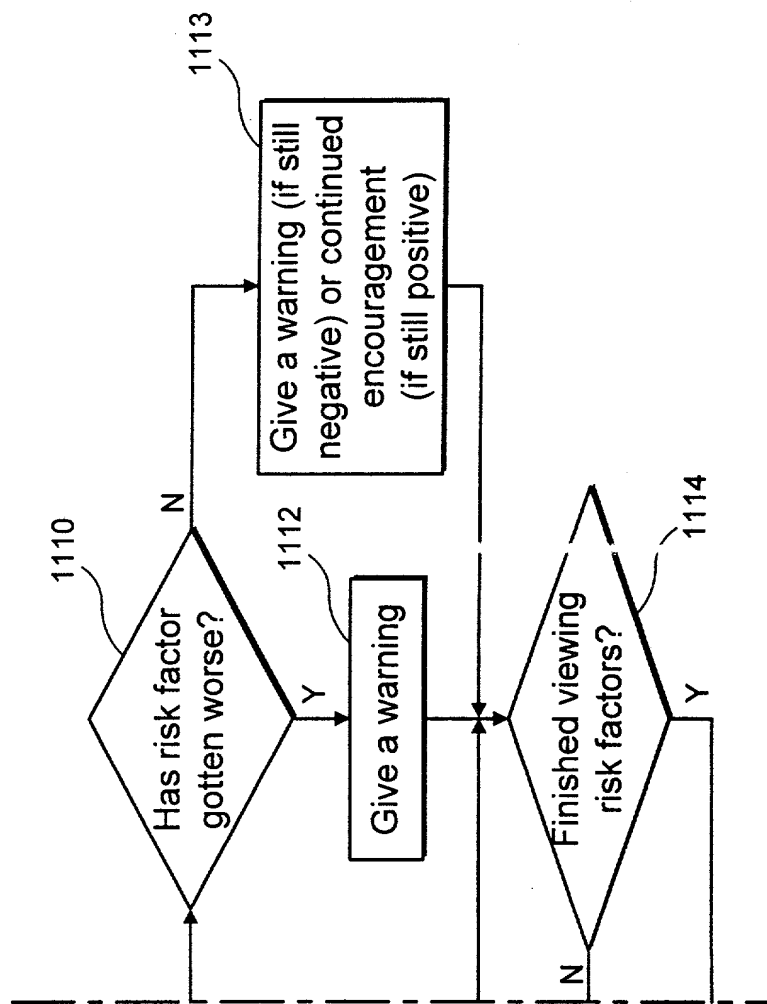


FIG. 11A

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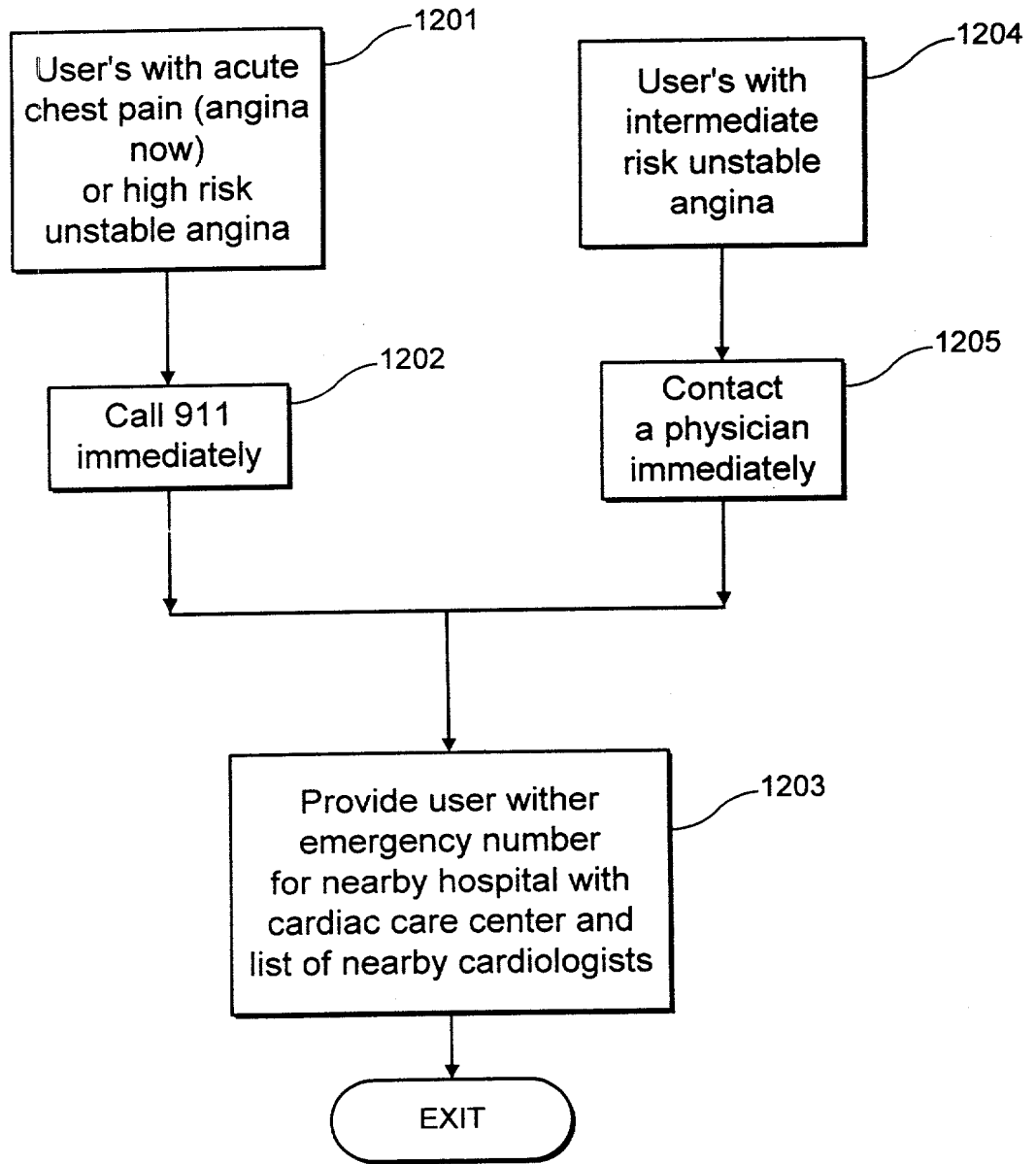


FIG. 12